Factors Contributing to Reading Performance: An In-Depth Analysis of the "Boy Crisis"

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Abstract

This research used a quantitative study approach to investigate the "boy crisis" in Canada. Boy crisis advocates suggest that boys are being surpassed by girls on reading assessments and promote strategies to assist male students. A feminist framework was used in this study that allowed for an investigation and discussion of the factors that mediate between gender and success at reading comprehension, interpretation, and response to text without ignoring female students. Reading scores and questionnaire data compiled by the Pan-Canadian Assessment Program were used in this research, specifically the PCAP-13 2007 assessment of approximately 30,000 13-year-old students from all Canadian provinces and Yukon Territory (CMEC, 2008). Approximately 20,000 participants wrote the reading assessment, while 30,000 students completed the questionnaire responses. Predictor variables were tested using parametric tests such as independent samples *t*-test, one-way ANOVA, chi-square analysis, and Pearson *r*. Findings from this study indicate that although boys scored lower than girls on the PCAP-13 2007 reading assessment, factors were found to influence the reading scores of both male and female students to varying degrees. Socioeconomic status, perceptions of the reading material used in language arts classrooms, reading preference, reading interest, parental involvement, parental encouragement for reading, and self-efficacy were all found to affect the reading performance of boys and girls. Relationships between variables were also found and are discussed in this research. The analysis presented in this study allows parents, educators, and policy makers to begin to critically examine and re-evaluate boy crisis literature and offers suggestions on how to improve reading performance for all students of all socioeconomic backgrounds.

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Table of Contents

List of Tables

CHAPTER ONE: INTRODUCTION TO THE STUDY

Conflicting research reports and theories surrounding literacy and the reading performance of boys and girls exist. Such reports derive from large-scale assessments, which are conducted to measure student performance and school board, school, and classroom accountability (Graham & Neil, 2004). These published reports are discussed in many research journals and articles to help support the notion that there is a "boy crisis" in our schools, where boys are said to be surpassed in reading performance by girls. Reading can be defined as being "a dynamic, interactive process whereby the reader constructs meaning from texts. The process of reading effectively involves the interaction of reader, text, purpose, and context before, during, and after reading" (Council of Ministers of Education, Canada, 2008, p. 7). Some large-scale assessment reports fail to address the factors that may contribute to the differences in reading performance. For example, reports rarely discuss issues of socioeconomic background or students from low-income family households (Martino, 2008) and how such variables may negatively affect one's learning. According to a study of children aged 24 months, a student's background (i.e., socioeconomic status, race, and ethnicity) can influence his/her educational attainment (Morgan, Farkas, Hillemeier, & Maczuga, 2009). An analysis and discussion on how various factors may contribute to one's reading success, such as gender, socioeconomic background, reading ideologies, reading preferences, reading interest, self-efficacy, and parental influences, were developed in this research.

This research analysed the authenticity of the boy crisis and, more importantly, reports on the possible variables that may contribute to the lower reading performance scores that boys are reported to have in comparison to girls. Data compiled by the

Council of Ministers of Education, Canada (CMEC) were analysed. Specifically, the 2007 study of approximately 30,000 Canadian 13-year-old students from the Pan-Canadian Assessment Program (PCAP) was used in distinguishing where the problem lies in reading achievement (CMEC, 2008).

Background of the Problem

As a response to the boy crisis, many research studies (Ontario Ministry of Education, 2004; Ontario Institute for Studies in Education, 2009a; Ontario Institute for Studies in Education, 2009b) promote strategies, programs, and initiatives to help close the literacy gap between male and female students. However, such suggestions place boys in one homogeneous group and do not address other contributing factors to the underachievement of boys (Martino, 2008; Mead, 2006; White, 2007). Simplistic discourse on the boy crisis needs to diminish and, instead, an in-depth analysis on the multitude of factors that contribute to such differences should be the focus in research, academic circles, school boards, schools, classrooms, and within the home. For example, the Education Quality and Accountability Office (EQAO) in Ontario publishes the Ontario Secondary School Literacy Test (OSSLT) scores and compares how boys and girls perform relative to one another. However, these scores alone do not take into account other variables, such as race, ethnicity, or socioeconomic status. There should be less discussion on programs and initiatives solely geared to help boys as one group, and more time, funds, and energy should be spent on how to improve the reading skills of *all* students. Research, policy changes, and amendments to teaching should ultimately benefit both male and female students, and, more importantly, students of all races and

backgrounds by taking into account the various factors that may contribute to performance.

Rather than addressing the contributing factors at the student level, fingers are pointed and blame is placed wherever it seems fit: (a) feminism, (b) female teachers, (c) the *lack* of male teachers in comparison to female teachers, (d) the differences in the biology of males and females, (e) available reading materials within the classroom, and (f) the learning environment. Many research reports and media headlines are declaring a severe crisis with boys and their reading comprehension and literacy skills, but many fail to report on where the real problem lies: the literacy skills of males and females of colour, especially those in low-income family households (Martino, 2008). "Not all boys are underachieving, nor are all girls out-performing boys; educators and policy makers need to address the question of which boys require help becoming literate and what kinds of help educators can provide" (Martino, 2008, p. 1). The strategies proposed by some boy crisis advocates will only perpetuate gender ideologies and segregation. These strategies include single-gender classrooms, segregating the genders in libraries by creating "boy zones," and using "boy friendly" reading materials in classrooms. Research conducted by Warrington, Younger, and Bearne (as cited in Martino, 2008) looked at various plans to improve the educational achievement of boys. Warrington et al.'s (as cited in Martino, 2008) research indicates that "it is in schools where gender constructions are less accentuated that boys produce higher attainment [and] that it is strategies which work to reduce constructions of gender difference which are most effective in facilitating their achievement" (p. 3). Warrington et al. (as cited in Martino, 2008) discuss the importance of identifying how educational institutions can influence

and propagate social gender norms and stereotypes. They conclude that initiatives that may strive to increase boys' achievement with single-gender learning environments will only cause segregation between boys and girls.

Statement of the Problem

Much of the research conducted on the reading performance of boys and girls fails to investigate possible contributing factors that may influence the differences in achievement levels. Reports tend to solely focus on whether there is a crisis or not, and those that claim there is a crisis do not always analyse reasons for it. When writing large-scale assessment tests (e.g., PCAP, EQAO, OSSLT), students complete background questionnaires. These data provide information on the possible factors contributing to student achievement; however, such information is not always included in discourses on the boy crisis. Better research needs to be conducted to determine the issues surrounding lower reading test scores so that strategies to improve reading comprehension, interpretation, and response to text for all students are possible.

Purpose of the Study

The purpose of this study was to examine the boy crisis by primarily distinguishing whether or not a real crisis exists, and if it does exist, where it lies. Much attention and funding are being dispensed to address this crisis, and many students are being short-changed as a result (Weaver-Hightower, 2003). Variables that may be contributing to the boy crisis have been addressed in this investigation using the PCAP-13 2007 reading results of 13-year-old Canadian students. The PCAP-13 2007 study assessed three subdomains of reading: comprehension, interpretation, and response to text (CMEC, 2008). The analysis and discussion of the possible factors that pertain to why

boys tend to score lower than girls on reading achievement in this research provides educators and parents with valuable information. Such data provide parents, educators, and policy makers with the information and tools needed to help create reading programs and learning environments within the school, classroom, and home that will foster and enrich reader friendly environments for *all* students.

Research Questions

This research highlights many questions in response to this "crisis." Is there a boy crisis with respect to reading performance? And if so, *which* boys are falling behind? What are the direct implications of boy crisis initiatives with respect to reading comprehension for *both* genders of students of all backgrounds? How can we use educational research to help improve the academic success of both our male and female students? Such questions are significant as one should realize the effect that policy makers, school boards, principals, and teachers have when placing monetary resources and valuable time on improving the underachievement of boys without any real discussion of where the problem lies. This can certainly cause a disservice for all when there is no clear understanding why certain groups of students are underachieving. The following research questions were used as a foundation to this study to investigate reading performance:

1. What are the factors that mediate between gender and success at comprehension, interpretation, and response to text?
2. How do socioeconomic factors, attitudes toward reading (including socially gendered ideas about reading), reading preferences, interest in reading, and

parental influences and encouragement affect reading performance in boys and girls?

Theoretical Framework

For the purpose of this research, the theoretical framework best suited to address the issues of the boy crisis follows a feminist approach; however, it is not limited to feminist theory. As seen in the literature review in Chapter Two, various conceptual approaches are evident and all strive to address and improve boys' reading performance in their own way. For example, the discourses on the "boy turn" commonly fall into one or more of the following categories:

- Popular-rhetorical literature
- Theoretically oriented literature
- Practice-oriented literature
- Feminist and pro-feminist responses. (Weaver-Hightower, 2003)

The research found within each of these categories is concerned with different causes and strategies to address the boy crisis. The theoretical approach best suited for this research to improve the reading performance of *all* students was considered to be a feminist perspective. A feminist approach questions *which* boys are being disadvantaged (Mead, 2006; Weaver-Hightower, 2003) and looks at issues of race and socioeconomic factors that may negatively influence educational achievement. In addition, the performance of girls and boys of all races and backgrounds are not ignored when using a feminist lens. This framework allowed for an investigation of the variables influencing reading performance and a critical analysis of the data beneficial to girls and boys of all races and socioeconomic backgrounds.

Importance of the Study

This study investigated the various reasons why some boys are not performing as well as girls on reading assessments. Those with higher levels of literacy are said to be better suited in society because they are less susceptible to unemployment, have a lower chance of being involved in crime, and have higher instances of longevity and good health (Kirsh et al., 2002). By uncovering and understanding the various factors that may contribute to one's reading experiences, educators and parents may become better equipped with knowledge on how to address issues of students not performing as well as others on reading assessments. The data provided by the PCAP-13 2007 questionnaires on reading interest, parental involvement and influences, self-efficacy and socioeconomic factors, were used to provide information on how such variables affected reading performance. Information on students, schools, and school boards remain confidential throughout this paper. The results and discussion from this research allow teachers to develop activities and lessons that will further assist both male and female students who lack in reading comprehension and skills. The data found can help policy makers understand why some boys and girls are struggling with reading, and help to create programs and initiatives geared to help all students (not just boys). The analysis of this research may assist parents to understand the importance of their child's early reading experiences within the home, and how such experiences may ultimately affect their child's reading performance. Finally, male and female students of all races and socioeconomic backgrounds may benefit from this study as an understanding of the different factors contributing to reading performance is discussed.

Scope and Limitations of the Study

This research focussed on the reading achievement levels of 13-year-old male and female students from all Canadian provinces and the Yukon Territory. Each province and the Yukon Territory were not tested and analysed separately due the abundance of data and time restraints. It is acknowledged that investigating each province and the Yukon Territory may yield interesting yet different results. By combining all results, broad generalizations were made. In addition, both French and English results were amalgamated in this study. Once again, separating by language would allow for a deeper look into the factors that influence achievement. Finally, as this research was created through a secondary data analysis and since the researcher was not involved in the process of collecting the data, the reliability and validity of the data collection instrument cannot be accurately discussed in detail.

Outline of the Remainder of the Document

This chapter introduces the conditions of the boy crisis and raises well-deserved questions pertaining to the underlying causes of the crisis. Possible factors contributing to the underachievement of boys in literacy are exposed in this chapter, challenging explanations and theories driven and fueled in homes, schools, and the media.

Chapter Two discusses the boy crisis debate and provides an in-depth look at the discourses that exist within academic circles. This chapter outlines educational, biological, and social theories that attempt to provide reasons for the boy crisis in literacy.

Chapter Three describes the methods and procedures that were used in analysing secondary data compiled from the CMEC. Questionnaire items and responses were

examined from the 2007 Pan-Canadian Assessment Program that assessed reading comprehension, interpretation, and response to text. Assumptions and limitations pertaining to this research are presented in this chapter.

Chapter Four explains in detail the results of all tests conducted in this research. Variables such as gender, socioeconomic status, parental influences and encouragement, reading perceptions, reading preferences, and self-efficacy were tested with reading score.

Chapter Five summarizes the results found in this research. A discussion of the research questions and how the results connect with current literature are presented. Finally, implications for practice and theory, as well as implications for further research, conclude this chapter.

CHAPTER TWO: REVIEW OF THE LITERATURE

This chapter examines the debate on the boy crisis in schools with respect to reading achievement. The research outlined in this chapter is divided into the following sections: The Boy Crisis Debate; Large-Scale Assessment: A Closer Look; Pointing Fingers; The Real Story – Boys, Girls, and Literacy; What is the Real Crisis? A look at Race, Ethnicity, and Socioeconomic Status; and Implications of the Boy Crisis: Gender-Inclusive Teaching.

The Boy Crisis Debate

The educational crisis surrounding the reading and writing performance of boys has been at the forefront of many educational journals and discourses. Research on the boy crisis indicates that gaps between the scores of boys and girls are real and troubling, as boys tend to score lower on large-scale reading assessments when compared to girls (Chiu & McBride-Chang, 2006; Gambell & Hunter, 2000; Klinger, Shulha, & Wade-Woolley, 2009; Singh, 2008; Weaver-Hightower, 2008). Such reports allow researchers and authors to state that girls are surpassing boys in schools, so much that it has been declared a crisis (Bodkin et al., 2009; Booth, Elliott-Johns, & Bruce, n.d.; Kafer, 2007; Morrison, 2008; Sacks, 2003). Public attention on the issue has created a media-frenzied debate. As stated in the April 2006 issue of *The Philadelphia Inquirer*, "In the region and across the country, boys lag behind girls in nearly every educational benchmark" (as cited in Husain & Millimet, 2009, p. 38). A cover headline in *Newsweek* (January 2006) declared, "The boy crisis. At every level of education, they're falling behind. What to do?" (as cited in Mead, 2006, p. 4). Such reports cause a public concern and outrage, as these headlines suggest that *all* boys are doing poorly academically, and that *all* girls are

successful. As the focus is geared towards the education of boys, the educational needs of girls are being ignored.

The boy crisis is hardly new. In *The Myth of the Boy Crisis*, concern for boys was seen as early as the 1900s (Rivers & Barnett, 2006b). Boys were said to being "feminized" as they were taken away from their fathers and placed into the care and teaching of female teachers. Boys were even advised by the Indiana Senator, Albert Beveridge, to "avoid books and in fact avoid all artificial learning, for the forefathers put America on the right path by learning completely from natural experience" (Rivers & Barnett, 2006, April 9, para. 1). In the latter years of the 1960s, there was a concern for boys as education in the United States was seen as being "feminine," which led to the notion that boys were being restricted of their masculine culture (Connell, 1996). However, it was not until the mid-1990s that an international shift towards examining and addressing the reading and literacy achievement of boys became prevalent and popular (Weaver-Hightower, 2003). The boy crisis supporters argue that the disparity exists as a direct consequence of the increased attention devoted to improving education for girls. It is argued by boy-crisis advocates that immediate programs are needed within the education system to improve the academic achievement of male students (Connell, 1996). Opposing views of the claim argue that research reports and policies designed to close the reading achievement gap between girls and boys are ignoring the underlying causes of the differences, more specifically the reasons for the differences in scores between *groups* of boys (American Association of University Women Educational Foundation, 2001; Kimmel, 2010, Mead, 2006; Okopny, 2008; Rowan, Knobel, Bigum, & Lankshear, 2001).

There has been much debate on how educators should intervene to improve the achievement of boys as a result of this media-frenzied topic. Debates surrounding how to make schools more boy friendly, especially in regards to reading achievement, have surfaced at an alarming rate (Ontario Ministry of Education, 2004; Ontario Institute for Studies in Education, 2009a). Mead (2006) argues against the various reasons for why boys are said to be "lagging" behind in reading scores, such as the notion that boys are being "pinned down" and constricted in classrooms and the increased attention geared to assist female students within the education system. Various other reasons from classroom structures that suppress the natural biological predisposition of boys (Okopny, 2008) to classroom environments that are not structured *enough* for boys (Mead, 2006) have surfaced in reports. Such incompatible discussions are alarming and cause much confusion to those dedicated on improving the educational experiences and successes of all students.

Contradictory reports and research have surfaced that indicate there is no real boy crisis among boys and their achievement in reading. In fact, such reports claim that boys are doing better than ever and are improving significantly (Barnett & Rivers, 2007; Foster, Kimmel, & Skelton, 2001; Kimmel, 2000; Mead, 2006; Okopny, 2008). According to a study conducted by Matthews, Ponitz, and Morrison (2009) that set out to examine gender differences in the academic achievement of kindergarten students, no differences based on gender were found. Looking at data from the reading component of the 2002 Ontario Secondary School Literacy Test (OSSLT) conducted by the Education Quality and Accountability Office (EQAO), White (2007) found in her analysis that "the current concern regarding the under-achievement of boys in reading achievement appears

to have been overstated" (p. 570). Additionally, "there appears to be little evidence that the observed gender differences in reading achievement have practical consequences" (p. 570). Such reports clearly indicate that more research is needed in order to determine if the crisis exists to the extent that is being published, but more importantly, where the differences lie in reading achievement and ways to address them.

Large-Scale Assessment: A Closer Look

One of the purposes for large-scale assessment is to promote accountability, consistency, and improvement among schools and school boards (Crundwell, 2005). Individual students at the school level, schools, and school boards can be tracked and compared nationally and internationally (Klinger et al., 2009). For example, such data can be used to compare student performance to a benchmark (i.e., provincial standard) or to distinguish performance between groups (i.e., based on gender) or cohorts (i.e., based on age). According to Crundwell, such data acquired from large-scale assessments can also be used to evaluate educational programs and make necessary improvements to them. Large-scale assessment tests include data collected by the CMEC, the Education Quality and Accountability Office (EQAO), the National Assessment of Educational Progress (NAEP), the National Center for Education Statistics (NCES), and the Organisation for Economic Co-operation and Development (OECD). Many studies (Booth et al., n.d.; Klinger, et al., 2009; Gambel & Hunter, 2000; Singh, 2008) use large-scale assessment data to demonstrate a gap in reading performance between the genders. This section of Chapter Two will endeavour to describe these studies.

The Pan-Canadian Assessment Program (PCAP), instituted by the CMEC, provides data about the performance of 13-year-old Canadian students with respect to

reading, mathematics, and science (CMEC, 2008). Performance data from the 2007 PCAP study found that girls outperform boys in reading as shown by the average score of 513 (for females) compared to 490 (for males). The study also shows that 91% of 13-year-old female students performed at Level 2 or 3, while 87% of male students did at these levels. When analysing the percentage of students achieving at the appropriate levels (Level 2) for their age, 68% of males and 65% of females were successful. However, the PCAP-2007 study shows more 13-year-old female students (26%) than male students (19%) achieved at Level 3, causing the disparity between mean reading scores.

EQAO was established in 1996 to bring accountability in the Ontario education system and provide information regarding the quality of education in schools and classrooms (EQAO, 2004). In Ontario, Grade 3 and 6 students are assessed based on the curriculum expectations with respect to literacy. In high school, Grade 10 students write the Ontario Secondary School Literacy Test (OSSLT), also based on the curriculum expectations. Both large-scale performance tests are produced, administered, and graded by EQAO (2004) to determine whether or not students in Ontario are meeting provincial standards in reading and writing. In the 2010-11 academic year, 70% of Grade 3 female students, compared to 60% of Grade 3 male students were at or above the provincial standard (level 3) in reading according to the assessment results. Of the Grade 3 students who wrote the assessment, 80% of females and 67% of males met or surpassed the provincial writing standard. With respect to the Grade 6 students, 79% of female students and 69% of male students were at or above the provincial standard in reading. Of these Grade 6 students, 82% of females compared to 64% of males were at or above

the provincial standard in writing (EQAO, 2011a). A similar difference exists with Grade 10 students who wrote the OSSLT in 2011. According to the results from the March 2011 OSSLT, 82% of females compared to 73% of males were considered to be successful (EQAO, 2011b). Such results clearly indicate that boys in Ontario are not performing at the same reading and writing level as their female counterparts.

Research conducted and reported on in the United States of America also indicate that a disparity exists. NAEP was established in 1969 and is a project of the NCES within the Institute of Education and Sciences of the U.S. Department of Education. NAEP provides long-term assessment trends for groups of students by providing academic data and student background information for both elementary and secondary students at both the national and state level (NCES, 2011). The 2011 NAEP average reading score for 9-year old females was 225, compared to an average score of 218 for males. Females aged 13 years old scored an average of 270, while males scored an average of 261. An even higher gap is seen in 2009 with the average scores of 17-year-olds: 294 for females, compared to 282 for males. Although female students tend to score higher than males, NAEP results indicate that the reading gap has been closing between the genders since 1971 for all three age groups. For example, the gap closed from 13 to 7 for 9-year-olds, from 11 to 8 for 13-year-olds, and from 12 to 11 for 17-year-olds (Rampey, Dion, & Donahue, 2009).

The Programme for International Student Assessment (PISA), which began in 2000, also reports on the differences in academic performance between 15-year-old male and female students (CMEC, 2010b). Internationally, PISA studies the literacy skills of reading, mathematics, and science of 15-year-old students (OECD, 2010). It is reported

by OECD (2010) that although the gap varies between countries, girls outperform boys overall in all participating countries by 39 PISA points, "equivalent to . . . one year of schooling" (p. 14).

Some reports from large-scale assessment tests, such as the EQAO and the OSSLT, offer strategies for educators to help improve the reading and writing skills for the lagging gender, the boys. For example, *The Road Ahead: Boys' Literacy Teacher Inquiry Project 2005 to 2008,* created by the Ontario Institute for Studies in Education (2009b) and funded by the Ontario Ministry of Education, suggests strategies that address the literacy and reading gap between girls and boys. The report, *Me Read? And How! Ontario Teachers Report on how to Improve Boys' Literacy Skills*, available from the Ontario Institute for Studies in Education (2009a), provides dialogue and instruction ideas that educators can use to promote boys' literacy and reading achievement. The proposed items in this report include various techniques for educators, from offering a variety of materials in the classroom and libraries that boys will find "appealing" to using appropriate assessment tools for boys. Although such projects aim to improve the achievement of boys, much of the focus, energy, and funds may be taken away from establishing an equitable learning environment where both girls and boys of all races and backgrounds can be successful. Rather than narrowing in on where the gap lies, such strategies treat boys as a homogeneous group and do not cater to the various learning needs that boys may have.

It is important to note that many reports compare reading scores based solely on gender. Because these results are separated based on this criterion, the experiences of all boys (and girls) are amalgamated within the studies. Such reports offer no clear reasons

as to which factors are attributing to the differences in reading scores. Although the factors contributing to the differences between the genders are omitted from many research articles, some large-scale assessment tests (e.g., EQAO, PISA, PCAP) do include questionnaires for students to complete that ask important questions which can provide crucial information for researchers and educators. For example, PISA reports touch upon the differences in reading levels and choice of reading materials between boys and girls. Such consideration can help distinguish reasons why certain groups of students perform less than their counterparts and determine what actions educators can take to ensure quality learning for all students. The study, *Reading For Change: Performance and Engagement Across Countries* (Kirsch et al., 2001), conducted by PISA in 2000, found that in all countries participating in PISA, the profiles of reading choices for boys and girls differed. This study found that boys preferred reading materials such as comics, newspapers, and magazines, while girls engaged in reading other types of literature such as fiction books. In addition, this study reported that in most participating countries, the reading engagement of females surpassed that of males. Such information gathered by large-scale assessment programs can enrich educational discourse on how to improve the reading experiences and successes of both male and female students.

Pointing Fingers

Various reasons for the differences in reading and literacy achievement among boys and girls are discussed throughout the boy crisis literature. The four major categories of research literature, as discussed by Weaver-Hightower (2003), attempt to explain the boy crisis. The first category, popular-rhetorical literature, explains that boys are being negatively affected by feminized schools (for further research, Weaver-

Hightower suggests Biddulph, 1998; Pollack, 1998; Sommers, 2000). Within theoretically oriented literature, ideas of masculinity within schools and society are believed to be at the culprit of the crisis (for further research, Weaver-Hightower suggests Connell, 1995; Crotty, 2001; Mac an Ghaill, 1994; Willis, 1977). The third category, practice-oriented literature, deals with establishing practice-oriented interventions to aid boys academically and socially within schools and classrooms (for further research, the Weaver-Hightower suggests Bleach, 1998; Browne & Fletcher, 1995; Head, 1999). Feminist and pro-feminist responses are the fourth category Weaver-Hightower (2003) recognizes within the boy crisis literature. This framework questions and critiques the boy crisis concerns and argues that the learning experiences and reading performance of all students (regardless of gender) should be addressed (for further research, the author suggests Epstein, Elwood, Hey, & Maw, 1998; Lingard & Douglas, 1999).

Academic abilities and behaviours due to biology, the gender of the teacher, and the structure of the educational environment are often scrutinized and blamed for the disparity in male and female achievement. Researchers who turn to biology to explain the academic differences between males and females state that the education system fails boys because of the structure of the educational environment as a whole. It has been reported in various studies across countries, cultures, and languages that girls have a literacy advantage over boys from an early age that is attributable to biological differences (Klinger et al., 2009). Such differences in biological predispositions between the genders cause differences in learning (Okopny, 2008). Although differences in cognitive ability and educational achievement between the genders are relatively small,

the academic differences reported between groups of boys and groups of girls are not (Barnett & Rivers, 2007).

The structure of the learning environment is argued to have a negative effect on the learning experiences of boys. Some boy crisis supporters argue that the natural testosterone levels in boys do not permit them to sit quietly at their desks, follow instructions, or work collaboratively, as females can do "naturally." Some reports claim that "boys are not doing well in school because schools encourage collaborative work and oral and written competence in a controlled learning environment" (Okopny, 2008, p. 218). In *A Fine Young Man*, boy crisis advocate Michael Gurian (1998) claims, "with testosterone surging through their limbs, the requirement that boys sit still, raise their hands, and take naps leads to 'pathologizing what is simply normal for boys'" (as cited in Foster et al., 2001, p. 12). Learning environments where students are expected to behave, listen, collaborate with others, complete homework, and express themselves through written and oral means are argued to be innately inclined to girls, and not boys (Mead, 2006). However, as Okopny points out, "during the nineteenth century, privileged boys who did not have trade apprenticeships studied Latin, English, writing, and math, all of which formed the basis for critical thinking, dialogue, and writing—in a controlled classroom environment" (p. 218). Boys are seen as the victims because they are being restricted from what is considered "natural" boy behaviours within the classroom (Barnett & Rivers, 2007; Foster et al., 2001). What these reports fail to recognize is that not *all* boys have trouble sitting still, and not all girls *can* (Mead, 2006).

The feminization of teaching has also been used as a means to explain how the education system is short-changing boys (Watson, Kehler, & Martino, 2010). With the

high number of female teacher to male teacher ratio, the gender of the teacher (female) is said to be contributing to the boy crisis. Gender gaps in achievement are argued to be more prominent when the gender of the teacher is female (Froese-Germain, 2006; Gambell & Hunter, 2000). In addition, it is argued that the lack of male teachers does not allow for positive male role models for boys, which can cause a disassociation for many male students that can affect academic achievement (Froese-Germain, 2006). However, there is no evidence to suggest that having male teachers will positively affect the academic achievement of boys (Martino, 2008; Neugebauer, Helbig, & Landmann, 2010).

Using biology as a reason to support the issue of the crisis is simplistic in nature and places boys and girls in homogeneous groups based on their biological sex, disregarding the differences among groups of boys as well as the academic struggles of many girls. Martino (2008) rationalizes that such a generalization should not exist, and agrees with an Australian study on the boy crisis that suggests that what is needed is more of "a 'which boys/which girls' approach to gender reform in schools" (p. 1). He explains that such research will provide educators and policy makers with knowledge on where gaps and problems lie in education and provide all students with the opportunity to succeed. Mead (2006) points out the contradictory, debatable, and inconsistent reasons that are reported on for why the crisis exists:

> The problem, we are told, is that the structured traditional classroom doesn't accommodate boys' energetic nature and need for free motion—or it's that today's schools don't provide enough structure or discipline. It's that feminists have demonized typical boy behavior and focused educational resources on

> girls—or it's the "box" boys are placed in by our patriarchal society. It's that our schools' focus on collaborative learning fails to stimulate boys' natural competitiveness—or it's that the competitive pressures of standardized testing are pushing out the kind of relevant, hands-on work on which boys thrive. (p. 14)

Rather than focusing on inconsistent rationales, authors such as Martino and Mead explain that student achievement is attributed to good pedagogy that links the curriculum to a rich learning environment where all students, no matter what gender, race, or socioeconomic background have an equal opportunity to learn and thrive.

The Real Story – Boys, Girls, and Literacy

There appears to be a "battle of the sexes" mentality when it comes to boys, girls, and education, fuelled by media headliners, such as the *Globe and Mail's* (2006) headline, "You bet it's a 'boy crisis'" (Wente). Such headlines create panic and scrutiny towards education from the public, since boys are being viewed as the ones being left behind academically (Foster et al., 2001). This tug of war mentality creates the illusion of a conflict of interest and goals between the academic achievement of both genders, where the winner/loser attitude labels boys as the victims and girls as the victors (AAUW, 2001; Foster et al., 2001).

With reports that males are being short-changed and being surpassed by their female counterparts academically, there seems to be a sense that one gender is benefitting in our education system at the expense of the other (Kimmel, 2006). These claims tend to compare male achievement or underachievement in academics relative to females (Mead, 2006). Foster et al. (2001) discuss ideas of gender "ownership" as it pertains to education, stating that issues relating to previous gaps in education that favoured boys

were said to be the result of girls lacking academically rather than male entitlement. Today, the academic standing of male students is said to be the result of various internal and external factors that hinder their performance. "The crisis of boys' underachievement in reading may simply be overstated, and that much of the pessimism about young males seems to derive from inadequate research, poor analysis, and discomfort with the relative position of the sexes" (Mead, as cited in White, 2007, p. 557). Boy crisis claims have surfaced as females narrow the academic gap in subjects within which boys historically prevailed, leading to the notion that boys are not being supported within schools (Mead, 2006).

Various reports and research papers (e.g., AAUW, 2001; Foster et al., 2001; Mead, 2006; White, 2007) discuss the inconsistencies and lack of statistical significance boy crisis studies have produced. *Towards an Understanding of Gender Differences in Literacy Achievement* (Klinger, et al., 2009) states that reported differences in reading and writing performance between boys and girls vary and often do not exist. A study conducted by White (2007) analyses the 2002 OSSLT scores to determine whether the concerns are valid with respect to boys' literacy. Her findings indicate that although girls typically performed better in literacy, "gender failed to account for even 1 per cent of the variance in reading achievement" (p. 568). White concluded that the difference was not statistically significant. Mead uses research from the National Assessment of Educational Progress (NAEP) on reading assessment administered in 2005 to support the notion that the academic achievement of boys is not declining. NAEP reports state that since 1992, there has been an improvement in the reading skills of both fourth- and eighth-grade boys. Mead explains that the alarm comes from the fact that in comparison

to girls, boys are not achieving as quickly; however, boys are doing better than ever in their overall academic achievement.

What is the Real Crisis? A Look at Race, Ethnicity, and Socioeconomic Status

There is a general sense when speaking about boys and education that one is referring to "middle-class, suburban, white, heterosexual boys" (Foster et al., 2001). The discussion of middle-class boys underachieving in school receives more public attention than poor and minority boys (Barnett & Rivers, 2007). This predicament is troubling since many boys who are struggling in school are being overlooked and not being considered in reports on the boy crisis. The boy crisis discourse claims that schools are failing boys and assumes that *all* boys are falling behind without taking into account *which* boys are (Martino, 2008; Weaver-Hightower, 2003; White, 2007). Race, ethnicity, and socioeconomic status cannot be ignored when reporting on and discussing the reading and writing achievement of boys and girls as they can influence one's learning experiences (AAUW, 2001; Watson et al., 2010). Martino explains that despite the potential stigmatization, data should be separated based on a student's socioeconomic status and race to generate the knowledge needed to address the large gap between races.

In a public forum conducted in September 2000 that discussed issues surrounding education and summarized in the report, *Beyond the Gender Wars: A Conversation about Girls, Boys, and Education* (AAUW, 2001), Kimmel rationalizes that the boy crisis "may be what sociologists call a deceptive distinction – something that looks on aggregate like a gender difference that's actually much more a race and ethnicity difference" (p. 4). Evidence of socioeconomic factors affecting academic achievement exists, as seen with primary students in EQAO's *Towards an Understanding of Gender Differences in*

Literacy Achievement (Klinger et al., 2009). A study conducted by Chatterji (2006) indicates that "reading gaps in kindergarten were more associated with SES than with the student's gender" (p. 4). In the article, *Dropout, Failure Rates Linked to Language* in the Toronto Star, Brown (2006) explains that the Toronto District School Board in Ontario reports that students who are at a higher risk of failing the Grade 10 literacy test and less likely to apply to college or university are those who speak "Spanish, Portuguese, or Somali" (para. 2-3). In addition, students "born in the Caribbean, Central or South America and east Africa are twice as likely to drop out of school as their peers from China, Korea and Japan" (para.1). High school graduation rates are also affected by socioeconomic status, as explained by Barnett and Rivers (2007): "76 percent of students who live in middle- to higher-income areas are likely to graduate from high school, while only 56 percent of students who live in lower income areas are likely to do so" (para. 9). Kimmel (1999-2000) confers that the college enrollment and admission rates between White males and females only show a 2% difference that favours women (51% enrollment) over men (49% enrollment). However, there is a larger gap with college enrollment and admission rates between Black men and women: 37% are male while 63% are women. Kimmel (1999-2000) further argues that a similar disparity exists between Hispanic college students. He notes that 45% of Hispanic college students are male, while 55% are female, clearly indicating a racial and ethnicity issue in education and not solely that of gender.

There appears to be a clear issue with race, socioeconomic status, and academic achievement, and closing such gaps are what researchers and reports must strive to focus on in order to promote, maintain, and encourage equal opportunities in education for all

students (Kimmel, 2000; Martino, 2008; Mead, 2006; Okopny, 2008; Watson et al., 2010). Okopny points out that it is unfortunate that boy crisis claims ignore the educational dilemma that low-income boys of colour experience and that closing achievement gaps in literacy for racial and economic minorities would be more beneficial to boys than closing gender gaps. If funding is being allocated to address the boy crisis, perhaps resources should concentrate on the main problem: that of race, ethnicity, and socioeconomic status.

Implications of the Boy Crisis: Gender-Inclusive Teaching

Discourses surrounding how to assist male students in response to the boy crisis have surfaced in many research journals, trickling down to school boards, schools, and individual classrooms. The debate of the boy crisis comes from the notion that in comparison to girls, boys are not achieving as *quickly*. Mead (2006) explains that perhaps the whole boy crisis phenomenon lies with the idea that traditionalists find it difficult to accept that females are closing gaps in academic achievement and, in some areas, surpassing males in educational realms and careers. Mead states,

> [i]t's telling that even though younger boys are now doing better than girls on the long-term NAEP in math, when they once lagged behind, no one is talking about the emergence of a new 'girl crisis' in elementary- and middle-school math. (p. 6)

When analysing the PISA 2009 interactive database, it is clear that the mean score of boys in mathematics and science in this assessment surpassed that of the girls (OECD, 2013). It is interesting to note that according to Paul Cappon (2011) in *Exploring the 'Boy Crisis' in Education,* one of the main foundations of the OECD PISA was to

investigate why girls were not interested in the domain of mathematics and physical sciences. Cappon explains that as PISA found that boys were struggling in reading, this caused a shift in research which focussed on boys' literacy. What about the girls? Mead explains that the media cannot ignore the attention the boy crisis phenomenon creates, especially when "historically privileged boys could be at risk" (p. 14), even though it is clear that "low-income, minority, and female people consistently fall short of their affluent, white, and male peers" (p. 14). Mead asserts that the boy crisis should not cause alarm because it is only a "pet project" for those who wish to support popular educational discourse and for financial gain. However, the crisis *has* caused much alarm and panic to the public (White, 2007).

As a response to the "What about the boys?" debate, many newly developed resources and strategies have surfaced within schools to assist in creating and maintaining a boy friendly learning environment. New teaching styles, resources, activities, and reading programs have been introduced and implemented to better suit boys who are lagging behind the girls. As introduced by the Ontario Ministry of Education, *Me Read? And How! Ontario Teacher's Report on how to Improve Boys' Literacy Skills* (Ontario Institute for Studies in Education, 2009a) and *The Road Ahead: Boys' Literacy Inquiry Project 2005 to 2008* (Ontario Institute for Studies in Education, 2009b), provide educators with strategies on how to help improve the literacy skills and attitudes that boys have towards reading. Although both resources discuss the importance of maintaining an equitable learning environment between both genders, the strategies are focussed on helping *boys'* literacy, and there is no real mention of girls' literacy. For example, eight key learning strategies discussed in *The Road Ahead: Boys' Literacy Inquiry Project*

2005 to 2008 aim to improve boys' reading and writing engagement and achievement. Teachers are provided with advice on what materials to use in the classroom, are encouraged to supply boys with a choice of boy friendly literature, and are presented with differentiated assessment strategies and instruction suited for boys. However, such means used to improve the reading interests and skills of boys may indirectly harm the achievement of girls (Weaver-Hightower, 2003).

In response to the boy crisis, White (2007) recognizes that research and resources provide various suggestions, such as using boy-friendly literature, increasing the amount of male teachers and role models for boys, introducing more technology to enhance the participation and level of interest for boys, and same-gender schooling (see also Okopny, 2008). Biological theories explain that since boys and girls are biologically different, these strategies need to be implemented to help boys achieve academically in what is described as feminine teaching environments (Sommers, as cited in White, 2007). For example, as stated by an Ontario superintendent, "our system has been based on passive learning that has suited girls more than boys [and] a focus on fiction engages girls more than boys. To engage boys we need more manuals and techie stuff" (Miller, as cited in White, 2007, p. 557). Such an attitude can influence boys and girls with what society deems appropriate for what it means to be a boy or a girl. Programs geared to improve the reading comprehension and literacy for boys can include social norms that mirror society's views on gender ideologies. Kimmel (2010) suggests that the very idea of masculinity from society is what pushes boys to become disconnected and that "disengagement from school is actually seen as an enhancement of masculinity" (p. 28). A research study analysing student characters in educational textbooks performed by

Yanowitz and Weathers (2004) indicates that certain activities, personalities, attitudes, characteristics, and careers that are found in some textbooks are characterized as being masculine or feminine. Blaise (2005) used a poststructural feminist standpoint when she conducted a study in an urban public kindergarten classroom in the United States. The research indicates that students actively and willingly engaged in play that was deemed "appropriate" according to their gender. The research found that the girls would mainly play in the house centre while the boys would play with toy trucks and blocks, mirroring overt and covert messages found in the media, at school, and at home.

Responding to the supposed boy crisis and utilizing intervention methods without critically analysing the research and taking into account influential variables may reintroduce or sustain the oppressive gender order in society (Martino, 2008; Mead, 2006; White, 2007). The proposed boy crisis recommendations are merely "quick-fix solutions that suggest simplistic strategies for extremely complex problems . . . are not based on sufficient empirical evidence as to their effectiveness, and . . . their implementation may lead to unintended negative consequences for boys, and/or for girls" (White, 2007, p. 557). For example, in response to single-gender classrooms, although sexism and gender stereotyping is found in all schools, it is the most prominent in the all boys' schools (Lee et al., as cited in Barnett & Rivers, 2007). As seen in the research done by Johnson (2005), resistance from teachers against gender-inclusive polices will negatively affect both female and male students and can interfere with academic achievement of boys (particularly with reading comprehension) and girls (mainly with mathematics and sciences).

Summary of the Chapter

The research presented and discussed in this literature review outlines both viewpoints of the boy crisis. Boy crisis advocates indicate that boys are being surpassed by girls in reading performance and that an overhaul in education needs to take place. Blame is pointed in various directions: for example, biology of the sexes, gender ideologies in society, the structure of the classroom, and the gender of the teacher. Boy turn supporters argue that the underachievement of boys can be addressed by using boy-friendly materials, single-gender classrooms, more male teachers, and instruction suited to boys. Opposing claims suggest that rather than focussing only on the boys, girls and boys of various socioeconomic backgrounds should be included in the research. Good research includes an understanding of where the issues lie to ensure success for all students (Martino, 2010; Mead, 2006; Okopny, 2008). Research on the variables that may affect reading performance is the key to understanding where the differences lie. Such knowledge can be used to focus on which students are underachieving and why to ensure success for all.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

Chapter Three outlines the methodology and procedures that were used in this research. The research design discusses the type of analysis performed and the steps that were taken to obtain the data from the CMEC. The instrumentation section provides an overview of the types of items PCAP-13 2007 used in the assessment of 13-year-old students in Canada and the items used to assess reading in greater detail (CMEC, 2008). A brief discussion on how the CMEC ensures reliability and validity in their scoring procedures is provided in the section titled PCAP Questionnaire and Test Scoring. The procedures involving how the researcher analysed data compiled by the CMEC and the tests implemented are discussed in the section titled Data Analysis. Finally, the methodological assumptions and limitations of this research are discussed.

Research Design

This research was conducted as a secondary data analysis. Secondary data analysis allows researchers to use data sets compiled by another researcher or research team, which involves the process of "taking existing data and reanalyzing them to answer a new question" (Olsen & St. George, 2004). The dataset analysed was obtained from the 2007 Pan-Canadian Assessment Program large-scale reading assessment test (PCAP-13 2007). In order to obtain the data set for this research, the CMEC was contacted, as set in the "Pan-Canadian Assessment Program (PCAP) Data Sets: Terms of Availability." Approval was obtained from the CMEC after a synopsis of the research including a description of the methodology, the software, and dissemination plan was sent. The data items used were the reading scores of students involved in the PCAP assessment from all

Canadian provinces and the Yukon Territory, as well as questionnaire items that reflected predictor variables for reading performance.

Obtaining data from PCAP-13 2007 has enabled me to investigate the concerns surrounding the reading scores between male and female students. Reading scores were examined to explore the possible reasons behind the boy crisis and possibilities as to why males tend to score less than females on reading assessments as stated in the literature and reports (e.g., Chiu & McBride-Chang, 2006; Gambell & Hunter, 2000; Klinger et al., 2009; Singh, 2008; Weaver-Hightower, 2008). By using the PCAP-13 2007 data, this research explored the relationship found between reading achievement and predictor variables, such as socioeconomic status, gender, self-efficacy, parental influences and encouragement, and reading preferences.

Instrumentation

In 2010, the CMEC administered PCAP-2010 whose primary focus was on mathematics, with only a secondary focus on reading; hence, data from PCAP-13 2007 were used in this study since reading was the primary domain in this assessment. As defined by CMEC (2008), reading entails comprehension, interpretation, and response to text by making connections before, during, and after reading. Students were required to answer a variety of questions that encompassed the following different text types and test designs:

- Short narrative
- Personal narrative
- Information text
- Short story

- Editorial
- Website. (CMEC, 2008)

Diverse response possibilities were included in the assessment; for example, a short narrative piece in Section A allowed for an extended constructed response, while an editorial in Section E had nine selected-response items. Within the assessment of PCAP-13 2007, the three subdomains of reading, which are comprehension, interpretation, and response to text, were weighted at 40%, 35%, and 25%, respectively (CMEC, 2008). Comprehension is defined by the CMEC as an understanding of both the explicit and implicit meanings derived from the reading, as well as a deep understanding of the language used. According to the CMEC (2008), students who can successfully interpret text are said to be able to construct meaning and apply their understandings to other contexts. The third subdomain, response to text, assesses how well a student is able to make connections with the text by relating it to their own personal experiences and knowledge (CMEC, 2008).

Along with the reading assessment component of PCAP-13 2007, principals, teachers, and students completed questionnaires pertaining to reading experiences and achievement. For the purpose of this investigation, only questionnaires completed by the students were analysed. In general, the main items within the student questionnaire relevant to this research were the students' gender, socioeconomic status, reading interest, reading preferences, self-efficacy, attitudes towards gender-specific reading items, parental influences, and parental involvement with their child's reading (CMEC, 2008).

To create the 2007 large-scale reading assessment, the curriculum, assessment practices, and literature were all researched by PCAP to ensure common expectations

across jurisdictions. Bilingual "working groups" consisted of various experts who worked collaboratively to establish "theory, design, and performance descriptors for each domain" (CMEC, 2008, p. 2). To ensure the validity of the assessment, working groups from various jurisdictions were established by PCAP to develop test items and to undertake field testing with approximately 2,000 students from 100 schools within Canada. Once the test items were scored and revised, final test booklets were agreed upon by jurisdictions involved in the study. Similarly, a group of educators and research experts reviewed the SAIP, IEA-TIMSS, and PISA questionnaires to develop a framework that was used for the PCAP-13 2007 questionnaire. A group that consisted of the chair of the questionnaire development working group and two reading experts further elaborated the reading component of the questionnaire. Both groups worked collaboratively on the questionnaire items to ensure validity and reliability. To improve fairness across the jurisdictions, the CMEC ensured that differences in language, locations, and cultures were addressed in both the performance assessment and the questionnaire (CMEC, 2008).

With the collected data from PCAP-13 2007, reading scores and questionnaire items were tested for relationships, associations, and influences in this research. As data were found to be parametric in nature, tests including independent samples *t*-test, one-way ANOVA, chi-square analysis, and Pearson *r* were used. When testing for the significance of the mean reading scores between groups of boys and girls, the independent samples *t*-test was used. One-way ANOVA testing was used to test the significance of the mean in a categorical group. Post-hoc tests were conducted to determine where the differences occurred in the groups. Chi-square analysis allowed for

an investigation between the associations of variables. Finally, Pearson *r* was used when testing for relationships between variables.

PCAP Questionnaire and Test Scoring

The team of scorers from all participating jurisdictions scored the assessment in July 2007 in both English and French. To ensure reliability with the scoring process, parallel training was conducted for table leaders and scorers. Anchor papers were used, with twice daily interrater reliability checks and double scoring of booklets to ensure consistency in scoring (CMEC, 2008).

Sample

The characteristics that made up this sample included male and female 13-year-old students from all Canadian provinces and the Yukon Territory. Using a two-step stratified sampling technique, a random sample of 1,500 schools was chosen from all participating jurisdictions. From those schools, a random sample of approximately 30,000 students wrote the PCAP 13-2007 reading, mathematics, and science assessment. Nearly 20,000 students participated in the reading assessment; 15,000 students wrote in English, while 5,000 students wrote in French. Approximately 10,000 students wrote the mathematics and science assessment. Results from the reading component from both the English and French speaking students were analysed in this study. All completed questionnaires (approximately 30,000) were included in this research.

Variables Examined

Within the PCAP-13 2007 reading assessment, several variables were considered for use in this study as seen in Table 1. Items listed as “parental involvement,” “parental

Table 1

PCAP-13 Variables Examined

Variable	PCAP Item Number	Code
Reading Score	165	READ500
Gender	13	S1_01
Socioeconomic Status	20	S1_08
Gender Ideologies and Reading	96, 97	S5_03A, S5_03B
Reading Preference	41	S2_02M
Reading Interest	98	S5_03C
Parental Involvement	123 to 128, 140	S6_03A to S6_03F, S6_07A
Parental Influence	129, 130	S6_04A, S6_04B
Self-efficacy	35 to 37	S2_02G to S2_02I

Note: Item numbers and codes reflect PCAP item numbers and codes

influence," and "self-efficacy" were aggregated from various questionnaire items to create variables that were used in the analysis for this report.

Reading Score

Reading scores were based on three subdomains of reading: Reading comprehension, (weighted at 40%), interpretation (weighted at 35%), and response to text (weighted at 25%; CMEC, 2009). As stated in PCAP-13 2007: *Report on the Assessment of 13-Year-Olds in Reading, Mathematics, and Science* (CMEC, 2008), raw scores were translated where 500 was set as the Canadian average score for the sample, with 100 being the standard deviation.

Gender

Both male and female students were included in the PCAP-13 study and were included in this research. Specifically, the reading performance comparing male and female students were reported, as well as the performance of males and females as a group.

Socioeconomic Status

Socioeconomic status was included in the student questionnaire and was based on the highest level of a mother/female guardian's education. A higher level of education corresponded to a higher socioeconomic status. Specifically, completing one or more university degrees reflected a high socioeconomic status, while not completing high school indicated a low socioeconomic status.

Gender Ideologies and Reading

Students were asked in the PCAP-13 2007 questionnaire whether they felt that the reading materials used in their language arts classroom was more appropriate for girls or more appropriate for boys.

Reading Preference

The participants were asked what their reading preferences were: reading for information or reading stories.

Reading Interest

Students were asked in the PCAP questionnaire to rate their interest in reading based on the material used in their language arts classroom.

Parental/Guardian Involvement

Questions pertaining to parental involvement were included in the questionnaire. Students were asked whether their parent or guardian read to them when they were younger. Questions of whether they received encouragement and praise from their parent(s)/guardian(s) were also included in this research, as well as whether or not their parent(s)/guardian(s) showed an interest in what their child was reading.

Parental Influence

Parental influences with reading were included in this research. Students were asked how often their mother/female guardian and father/male guardian read at home.

Self-Efficacy

Self-efficacy items within the questionnaire were based on questions relating to one's perceptions on being a good reader, as well as one's confidence in reading.

Data Analysis

In order to compare scores among the various tests and jurisdictions, raw scores were converted by PCAP to a "standard scale" (CMEC, 2008).

> In the case of PCAP, the raw score was converted onto a scale on which the average for the pan-Canadian population was set at 500 with a standard deviation of 100. From this conversion, the scores of two-thirds of all participating students fell within this range of 400 to 600 points, which represents a "statistically normal distribution" of scores. (CMEC, 2008, p. 11)

As the data were found by PCAP to be parametric, tests that were parametric in nature were used throughout the analysis of this study. The tests used in this study include Pearson *r*, one-way ANOVA, chi-square analysis, and independent samples *t* –test.

Methodological Assumptions

Certain assumptions were made when conducting this research. One assumption was that students were using knowledge to the best of their ability to answer the questions honestly and accurately when completing the questionnaire. Secondly, an assumption was made that factors (i.e., mother's educational background) that the CMEC used as a proxy for variables for which I am testing (i.e., socioeconomic status) were valid. As indicated by the CMEC (2010a), the level of a mother/female guardian's level of education can be used as an indicator for socioeconomic status which has "been shown consistently to be related to educational achievement" (p. 13). Lastly, this research assumes that the procedures used by the CMEC to score the PCAP-2007 booklets, as well as the data compiled from the assessment and questionnaires, were performed accurately, fairly, and with the utmost care to ensure reliability and validity in the items.

Limitations

The data set that was used in this research was taken from the large-scale assessment of 13-year-olds in Canada compiled by the Pan-Canadian Assessment Program (PCAP) and reported in *PCAP-13 2007: Report on the Assessment of 13-Year-Olds in Reading, Mathematics, and Science* (CMEC, 2008). As the raw data were taken from this study, it was assumed that the utmost thought and careful consideration was used by PCAP in the creation of the assessment tool, the random selection of schools and students, and the scoring. PCAP ensured random sampling, random assignment of booklets to students, training for scorers, and interrater reliability checks in their report. This may be seen as a limitation because the data that were analysed and discussed in this report were not compiled directly for this research.

Although the participation rate was over 85% (CMEC, 2008) in the 2007 PCAP study, students who were exempted, but whose data were included for statistical purposes, were defined as those:

- with extremely low abilities;
- negatively affected by the test;
- with accommodations that could not be made;
- where parents authorized that their child not participate. (CMEC, 2009)

A more in-depth description of the above exemptions in the PCAP-13 2007 report would have proven beneficial to ensure proper population sampling and statistically significant data to the reader. For example, how did PCAP define "low abilities?" In what ways can a student be negatively affected by the test? Which accommodations could not be met?

If these students were excused from writing the test, to what extent could the results be affected and possibly skewed?

Finally, one may question the questionnaire items used to determine socioeconomic status. According to the PCAP-13 2007 study, the level of a mother's academic background and the number of books within the household were the indicators of socioeconomic status (CMEC, 2009). An important limitation this research faced was how accurate students were when completing the questionnaire. A student may not have answered the background questions with full knowledge. For example, students may not know the level of their mother's education. The accuracy of answering this question was critical as socioeconomic factors play a vital role in this research. In addition, one may question whether the educational background of a student's mother may accurately indicate one's socioeconomic status. Many factors are assumed here, such as the implication that one's education will solely direct them to a certain career, thus determining their socioeconomic status. Although one can presume that an individual with a higher education will obtain a higher paying job, this cannot be assumed with all cases. Students who did not have a mother/female guardian had the option of "I don't know;" therefore, their results were still included in the data. Finally, the number of books within the home gives the assumption that a family with a higher socioeconomic status can provide more books for their child and a family with a lower socioeconomic status cannot. Again, this will not always be the case because homes with a lower socioeconomic status may have more books than a home with a higher socioeconomic status. Limited to the questionnaire items to determine socioeconomic status, the level of

a mother's academic background was used to determine socioeconomic status in this research.

Summary of the Chapter

The purpose of this research was to address the variables that influence reading performance among 13-year-old male and female students in Canada. Raw data compiled of individual reading scores and data collected from questionnaire items by the PCAP-13 2007 assessment were tested in this research. Variables relating to reading performance scores, such as socioeconomic status, reading interest, ideologies about reading, parental influence, involvement, and encouragement, and self-efficacy, were tested. The chapter systematically outlined the methodology, design, instrumentation, questionnaire, and test scoring procedures by PCAP-13 2007. Tests conducted in this research to analyse the factors that pertain to the boy crisis in this research were discussed. Any methodological assumptions and limitations were also addressed and included in this chapter. Chapters Four and Five present the findings of this research, as well as a detailed analysis of the results and any implications of this study. Such information is hoped to be beneficial and useful in conducting a learning environment valuable for all students.

CHAPTER FOUR: FINDINGS

This investigation was designed to explore the possible relationships between gender and socioeconomic background, attitudes toward reading, reading preferences, reading interest, gender ideologies, self-efficacy, and parental involvement with reading scores among 13-year-old students across Canada using PCAP-13 2007 data. As PCAP data were found to be parametric in nature, Pearson *r*, one-way ANOVA, chi-square analysis, and independent samples *t*–tests were used in this study. Chapter Four will provide an in-depth summary of the results and findings from the investigation.

Analysis of Variables

The data compiled by PCAP were used to explore possible explanations for reading performance results among 13-year-old Canadian students. The Appendix section lists the summary of the analysis for all tests, including one-way ANOVA, chi-square analysis, and independent samples *t*-test. Results from the Pearson *r* tests and each chi-square value are included in the section that pertains to the corresponding variables that used such tests. Male and female students were compared as both a homogeneous group and as a heterogeneous group to investigate possible differences among the reading scores and to explore reasons for such differences if they were found to exist. Opposite questions that were included in the student questionnaire were used in this research to further assure reliability whenever available. Compiled data representing students' reading performance, reading attitudes, preferences, influences, socioeconomic status, and self-efficacy were tested, dissected, and interpreted to provide an understanding behind reading performance scores among 13-year-old Canadian male and female students.

Reading Score and Gender

The independent samples *t*-test indicated that the mean reading score of 13-year-old Canadian female students was higher compared to the mean score of 13-year-old Canadian male students as seen in Appendix A. A statistically significant difference was found between groups ($p<.05$). Female participants averaged a mean score of 493.18, while male participants averaged a mean score of 467.97.

Socioeconomic Status

Socioeconomic status influenced student reading scores, as found by one-way ANOVA tests. Test results indicated that both male and female students with a lower socioeconomic status had a much lower mean score of 442.70 compared to male and female students with a higher socioeconomic status, with a mean score of 509.53 (refer to Appendix B). A statistically significant difference was found between the groups ($F=164.88$, $p<.05$).

When socioeconomic status and reading scores among male students were tested and analysed, participants with a low socioeconomic status had a substantially lower mean score (422.01) compared to participants with a higher socioeconomic status (494.14), as seen in Appendix C. A statistically significant difference was found between the groups for male students ($F=72.48$, $p<.05$). Similarly, when socioeconomic status and reading scores among female students were analysed, participants with a low socioeconomic status had a significantly lower mean score (458.30) than participants with a higher socioeconomic status (526.29), as seen in Appendix D. A statistically significant difference was found between the groups for female students ($F=104.24$, $p<.05$).

Gender Ideologies and Reading

A statistically significant difference was found through a one-way ANOVA test (F=141.65, p<.05) between the reading scores of 13-year-old male students who believed that the reading material in their language arts classroom was more appropriate for boys than girls. The mean reading score of boys who believed that the material was "a lot" more appropriate for boys than girls was 481.90 compared to the mean score of boys who believed the reading material was "not at all" more appropriate for boys than girls (416.48), as seen in Appendix E.

A one-way ANOVA test showed a statistically significant difference (F=134.75, p<.05) when testing for reading achievement of 13-year-old male students and whether or not they believed that the reading material used in their language arts program was more suitable for girls than boys (see Appendix F). The mean score of boys who believed that the reading material used in their language arts classroom was "not at all" more appropriate for girls than boys was 483.28 compared to the mean reading score of boys who believed that the reading material in their language arts classroom was "a lot" more appropriate for girls (425.98). As these opposite questions were tested, results indicated that most boys in the study believed that the reading material used in their language arts classroom was more suitable for boys than girls.

A statistically significant difference was found through a one-way ANOVA test (F=62.37, p<.05) between the mean reading scores of 13-year-old female students who believed that the reading material used in their language arts classroom was more appropriate for boys than girls (refer to Appendix G). Female students who believed that the reading material was "a lot" more appropriate for boys had a mean reading score of

501.16 compared to the mean reading score of female students who believed that the reading material was "not at all" more appropriate for boys (471.44).

When analysing reading achievement and whether 13-year-old female students believed that the reading material used in their language arts classroom was more appropriate for girls than boys, a statistically significant difference was found (F=40.76, p<.05) as seen in Appendix H. Female participants who believed that the reading material used in their language arts classroom was "not at all" more appropriate for girls than boys had a mean reading score of 500.12 compared to female participants who believed that the reading material used in their language arts classroom was "a lot" more suitable for girls than boys (467.61). Female answers to these opposite questionnaire items reveal that most believe that the reading material used in their language arts classroom was more fitting for males than females.

Chi-square analysis was used to determine if an association exists between student beliefs about whether the reading material used in their language arts classroom was more appropriate for girls or boys, and how often their parent(s)/guardians(s) read at home. Chi-square analysis has demonstrated that an association exists between whether male participants believed that the reading material used in their language arts classroom was more appropriate for girls than boys and how often their father/male guardian read at home; $\chi^2(9) = 41.07$, p<.05 (refer to Appendix I). Fathers who "often" read at home have a decreased likelihood that their son will agree "a little" to the statement, "The reading we do in school is more appropriate for girls than boys" (Std. Residual: -2.6). Fathers who "sometimes" read at home have a decreased likelihood that their son will agree "a

lot" with the statement, "The reading we do in school is more appropriate for girls than boys" (Std. Residual: -2.2).

As seen in Appendix J, an association exists between whether male participants believe that the reading material used in their language arts classroom was more appropriate for boys than girls and how often their father/male guardian read at home; $\chi^2(9) = 38.74$, $p<.05$. Fathers who "sometimes" read at home have a decreased likelihood that their son will "not at all" agree with the statement, "The reading we do in school is more appropriate for boys than girls" (Std. Residual: -2.7).

Chi-square analysis testing was also used to determine the association, if any, between 13-year-old male participants who reported that the reading material used in school was more appropriate for girls in comparison to boys, and how often their mother/female guardian reads at home. As seen in Appendix K, chi-square analysis has demonstrated that boys who view the reading material used in their language arts classroom as being more appropriate for girls than boys is associated with how often their mother/female guardian reads at home; $\chi^2(9) = 81.14$, $p<.05$. Mothers who "often" read at home have an increased likelihood that their son will "not at all" agree with the statement, "The reading we do in school is more appropriate for girls than boys" (Std. Residual: 2.1). Mothers who "sometimes" read at home have an increased likelihood that their son will agree "a little" with the statement, "The reading we do in school is more appropriate for girls than boys" (Std. Residual: 2.2). Mothers who "often" read at home have a decreased likelihood that their son will agree "a little" with the statement, "The reading we do in school is more appropriate for girls than boys" (Std. Residual: -2.5). Mothers who "rarely or never" read at home have an increased likelihood that their son

will agree “a lot” with the statement, “The reading we do in school is more appropriate for girls than boys” (Std. Residual: -2.5).

An association exists between whether male students believed that the material used in their language arts classroom was more suitable for boys than girls and how often their mother/female guardian reads at home; $\chi^2(9) = 76.88$, $p<.05$ (refer to Appendix L). Mothers who “rarely or never” read at home have a decreased likelihood that their son will agree “a lot” with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: -2.1). Mothers who “often” read at home have an increased likelihood that their son will agree “a lot” with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: 2.3). Mothers who “rarely or never” read at home have an increased likelihood that their son will agree “more than a little” with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: 2.1). Mothers who “often” read at home have a decreased likelihood that their son will agree “more than a little” with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: -2.2). Mothers who “often” read at home have a decreased likelihood that their son will agree “a little” with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: -2.4). Mothers who “rarely or never” read at home have an increased likelihood that their son will “not at all” agree with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: 2.1). Mothers who “often” read at home have a decreased likelihood that their son will “not at all” agree with the statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: -2.2).

As seen in Appendix M, chi-square analysis testing indicated that an association existed between whether female participants believed that the reading material used in their language arts classroom was more appropriate for boys than girls and how often their father/male guardian read at home; $\chi^2(9) = 24.59$, $p<.05$. Fathers who "sometimes" read at home have an increased likelihood that their daughter will agree "more than a little" with the statement, "The reading we do in school is more appropriate for boys than girls" (Std. Residual: 2.3). Fathers who "often" read at home have a decreased likelihood that their daughter will agree "more than a little" with the statement, "The reading we do in school is more appropriate for boys than girls" (Std. Residual: -2.8).

Chi-square analysis has also demonstrated that an association existed between girls who believed whether the reading material used in their language arts program was more suitable for girls than boys and how often their mother/female guardian read at home; $\chi^2(9) = 42.23$, $p<.05$ (refer to Appendix N). Mothers who "rarely or never" read at home have an expected likelihood that their daughter will agree "a little" with the statement, "The reading we do in school is more appropriate for boys than girls" (Std. Residual: 1.9).

As seen in Appendix O, an association exists between whether female students believed that the material used in their language arts classroom was more suitable for boys than girls and how often their mother/female guardian read at home; $\chi^2(9) = 48.87$, $p<.05$. Mothers who "rarely or never" read at home have an increased likelihood that their daughter will agree "a little" with the statement, "The reading we do in school is more appropriate for boys than girls" (Std. Residual: 3.7). Mothers who "often" read at home have a decreased likelihood that their daughter will agree "a little" with the

statement, “The reading we do in school is more appropriate for boys than girls” (Std. Residual: -2.2).

Reading Preference

One-way ANOVA testing indicated that male students who prefer reading for information achieved a lower mean score than male students who prefer to read stories. As seen in Appendix P, the mean score of male students who prefer to read stories is reported as 475.37. The mean score of male students who prefer to read for information is reported as 447.26. A statistically significant difference was found between groups (F=98.05, p<.05).

When analysing female participants, one-way ANOVA testing reported that female students who prefer to read stories achieved a higher mean reading score (501.99) compared to female students who prefer to read for information (450.72) as seen in Appendix Q. A statistically significant difference was found between groups (F=91.02, p<.05).

As one-way ANOVA tests indicate that students who prefer to read stories have higher reading scores, further chi-square analysis tests were conducted to investigate whether the gender of a parent who reads at home is associated with a student’s reading preference: reading for information or reading stories. Chi-square analysis has demonstrated that an association existed between a male student’s choice of reading material and how often their father/male guardian reads at home (as seen in Appendix R); $\chi^2(9) = 68.06$, p<.05. Fathers who “rarely or never” read at home have an increased likelihood that their son will “strongly disagree” with the statement, “I would rather read for information than read stories” (Std. Residual: 3.1). Fathers who “rarely or never”

read at home have a decreased likelihood that their son will "disagree" with the statement, "I would rather read for information than read stories" (Std. Residual: -3.9). Fathers who "sometimes" read at home have a decreased likelihood that their son will "strongly disagree" with the statement, "I would rather read for information than read stories" (Std. Residual: -2.5). Fathers who "sometimes" read at home have an expected likelihood that their son will "agree" with the statement, "I would rather read for information than read stories" (Std. Residual: 2.0). Fathers who "sometimes" read at home have an expected likelihood that their son will "strongly agree" with the statement, "I would rather read for information than read stories" (Std. Residual: -2.0). Fathers who "often" read at home have an increased likelihood that their son will "disagree" with the statement, "I would rather read for information than read stories" (Std. Residual: 2.6). Fathers who "often" read at home have an expected likelihood that their son will "agree" with the statement, "I would rather read for information than read stories" (Std. Residual: -2.0).

In addition, chi-square analysis has demonstrated that an association existed between a male student's choice of reading material (reading for information versus reading stories) and how often their mother/female guardian reads (refer to Appendix S); $\chi^2(9) = 94.52$, $p<.05$. Mothers who "rarely or never" read at home have an increased likelihood that their son will "strongly disagree" with the statement, "I would rather read for information than read stories" (Std. Residual: 2.4). Mothers who "rarely or never" read at home have a decreased likelihood that their son will "disagree" with the statement, "I would rather read for information than read stories" (Std. Residual: -4.7). Mothers who "rarely or never" read at home have an increased likelihood that their son

will “strongly agree” with the statement, “I would rather read for information than read stories” (Std. Residual: 2.9). Mothers who “sometimes” read at home have an increased likelihood that their son will “agree” with the statement, “I would rather read for information than read stories” (Std. Residual: 2.8). Mothers who “often” read at home have an increased likelihood that their son will “disagree” with the statement, “I would rather read for information than read stories” (Std. Residual: 3.1). Mothers who “often” read at home have a decreased likelihood that their son will “agree” with the statement, “I would rather read for information than read stories” (Std. Residual: -2.5).

A Chi-square analysis has demonstrated that an association exists between the reading preference of female students (reading for information versus reading stories) and how often a mother/female guardian reads at home (refer to Appendix T); $\chi^2(9) = 82.80$, $p<.05$. Mothers who “rarely or never” read at home have a decreased likelihood that their daughter will “disagree” with the statement, “I would rather read for information than read stories” (Std. Residual: -3.4). Mothers who “rarely or never” read at home have an increased likelihood that their daughter will “agree” with the statement, “I would rather read for information than read stories” (Std. Residual: 4.8). Mothers who “rarely or never” read at home have an increased likelihood that their daughter will “strongly agree” with the statement, “I would rather read for information than read stories (Std. Residual: 2.5). Mothers who “often” read at home have a decreased likelihood that their daughter will “agree” with the statement, “I would rather read for information than read stories” (Std. Residual: -3.6).

Similarly, chi-square analysis has determined that an association exists between the reading preference of female students and how often a father/male guardian reads at

home (refer to Appendix U); $\chi^2(9) = 30.90$, $p<.05$. Fathers who "rarely or never" read at home have an expected likelihood of having daughters who "strongly agree" with the statement, "I would rather read for information than read stories" (Std. Residual: 1.9). Fathers who "rarely or never" read at home have a decreased likelihood of having daughters who "disagree" with the statement, "I would rather read for information than read stories" (Std. Residual: -3.0). Fathers who "rarely or never" read at home have an increased likelihood of having daughters who "agree" with the statement, "I would rather read for information than read stories" (Std. Residual: 2.2). Fathers who "often" read at home have an expected likelihood of having daughters who "agree" with the statement, "I would rather read for information than read for" (Std. Residual: -2.0).

Reading Interest

One-way ANOVA analysis has exhibited that 13-year-old students (male and female) who find reading interesting in their language arts classroom have a higher mean reading score (495.00) compared to the mean score of students who do not find the reading material used in their language arts classroom interesting (452.91). A statistically significant difference was found between groups (F=177.59, $p<.05$) as seen in Appendix V.

Male students who indicated that the reading in their language arts classroom was interesting had a much higher mean score (480.61) compared to male students who did not indicate that the reading in their language arts classroom was interesting (444.77). As seen in Appendix W, a statistically significant difference was found between groups (F=78.12, $p<.05$).

Similarly, a higher mean reading score was found between female students who believed that the reading material in their language arts classroom was interesting (507.65), compared to female students who did not find the reading in their language arts classroom as interesting (467.33). A statistically significant difference was found between groups (F=71.17, p<.05) as seen in Appendix X.

In addition to analysing how one's interest in reading affected reading score, chi-square analysis was used to determine if one's reading interest was influenced by socioeconomic status. As seen in Appendix Y, the reading enjoyment among male and female students was found to be associated by socioeconomic status; $\chi^2(18) = 207.31$, p<.05. An increased likelihood was found of students with a low socioeconomic status who "not at all" agreed with the statement, "The reading we do in school is interesting to me" (Std. Residual: 3.6). A decreased likelihood was found of students with a low socioeconomic status who agreed "more than a little" with the statement, "The reading we do in school is interesting to me" (Std. Residual: -3.1). A decreased likelihood was found of students with a high socioeconomic background who agreed "not at all" (Std. Residual: -3.1) and "a little" (Std. Residual: -3.9) with the statement, "The reading we do in school is interesting to me. An increased likelihood was found of students with a high socioeconomic background who agreed "more than a little" (Std. Residual: 4.9) and "a lot" (Std. Residual: 6.4) with the statement, "The reading we do in school is interesting to me".

Chi-square analysis has demonstrated that an association exists between the reading enjoyment of male participants and socioeconomic status (refer to Appendix Z); $\chi^2(18) = 99.53$, p<.05. Male students with a low socioeconomic background had an

increased likelihood to "not at all" agree with the statement, "The reading we do in school is interesting to me" (Std. Residual: 2.8). Tests also show that male students with a low socioeconomic background had a decreased likelihood to agree "more than a little" with the statement, "The reading we do in school is interesting to me" (Std. Residual: -2.6). Male participants with a high socioeconomic background had a decreased likelihood to agree "not at all" (Std. Residual: -2.7) and "a little" (Std. Residual: -2.3) with the statement, "The reading we do in school is interesting to me." Male students with a high socioeconomic background had an increased likelihood to agree "more than a little" (Std. Residual: 4.0) and "a lot" (Std. Residual: 4.3) with the statement, "The reading we do in school is interesting to me."

As with the male students, chi-square analysis has demonstrated that reading enjoyment of female students was associated with socioeconomic status, as seen in Appendix AA; $\chi^2(18) = 127.41$, $p<.05$. Female students with a low socioeconomic background had an increased likelihood to "not at all" agree with the statement, "The reading we do in school is interesting to me" (Std. Residual: 3.5). Female students with a low socioeconomic background had a decreased likelihood to agree "more than a little" with the statement, "The reading we do in school is interesting to me" (Std. Residual: -2.4). Female students with a high socioeconomic background had a decreased likelihood to agree "not at all" (Std. Residual: -2.3) and "a little" (Std. Residual: -3.1) with the statement, "The reading we do in school is interesting to me." Female students with a high socioeconomic background had an increased likelihood to agree "more than a little" (Std. Residual: 3.3) and "a lot" (Std. Residual: 4.9) with the statement, "The reading we do in school is interesting to me."

Parental/Guardian Involvement

A one-way ANOVA analysis has demonstrated that students whose parent(s)/guardian(s) read to them when they were younger performed higher on the PCAP-13 2007 reading assessment compared to students whose parents did not read to them when they were younger. As seen in Appendix BB, female students who reported that their parent(s)/guardians(s) read to them "often" when they were younger had a significantly higher mean reading score of 508.38 compared to female students who reported that their parent(s)/guardian(s) "rarely or never" read to them when they were younger, with a mean score of 457.97. A statistically significant difference was found between groups (F=174.42, p<.05).

Male students who reported that their parent(s)/guardians(s) read to them "often" when they were younger had a notably higher mean score of 489.29 compared to male students who reported that their parent(s)/guardian(s) "rarely or never" read to them when they were younger, with a mean reading score of 438.55 (refer to Appendix CC). A statistically significant difference was found between groups (F=195.18, p<.05).

Pearson r analysis was used to determine the correlation between parental involvement with their child's reading experiences and reading score. Results indicate a low degree of correlation between parental involvement in reading and reading performance among boys, with a statistically significant difference (r=.224, p<.05). For female participants, Pearson r analysis shows a low degree of correlation between parental involvement in reading and reading performance among girls, with a statistically significant difference (r=.193, p<.05).

A one-way ANOVA analysis was used to determine if mean reading score was influenced by parental encouragement for reading. As seen in Appendix DD, male participants whose parent(s)/guardian(s) encouraged them to read "often" had a mean reading score of 488.30. Male participants whose parent(s)/guardian(s) "rarely or never" encouraged them to read had a considerably lower mean score of 425.39. A statistically significant difference was found between groups (F=251.53, p<.05). Similar results were found when testing parental encouragement for reading among female students. As seen in Appendix EE, female students whose parent(s)/guardian(s) encouraged them to read "often" had a higher mean reading score of 506.45 compared to participants whose parent(s)/guardian(s) "rarely or never" encouraged them to read (463.37). A statistically significant difference was found between groups (F=163.96, p<.05).

Parental Influence

As seen in Appendix FF, a one-way ANOVA analysis revealed that the mean reading score for male students is influenced by how often their female parent/guardian reads at home. Boys whose mother/female guardian "often" read at home had a higher mean reading score (482.72) than boys whose mother/female guardian "rarely or never" read at home (438.25). A statistically significant difference was found between groups (F=90.91, p<.05). Similar results were found when analysing boys whose father/male guardian "often" read at home (refer to Appendix GG). Male students whose father/male guardian "often" read at home had a higher mean score (482.34) than male students whose father/male guardian "rarely or never" read at home (456.05). A statistically significant difference was found between groups (F=36.85, p<.05).

Parental/guardian influence was found on mean reading scores using a one-way ANOVA test for female students as well. As seen in Appendix HH, female students whose mother/female guardian "often" read at home had a higher mean reading score (504.82) compared to female students whose mother/female guardian "rarely or never" read at home (471.28). A statistically significant difference was found between groups (F=53.67, p<.05). In addition, female students whose father/male guardian "often" read at home achieved a higher mean score (508.68) compared to female students whose father/male guardian "rarely or never" read at home (482.94; refer to Appendix II). A statistically significant difference was found between groups (F=35.93, p<.05).

Self-Efficacy

A one-way ANOVA test has demonstrated that self-efficacy influences reading performance. Overall, students with a higher sense of self-efficacy had a higher mean reading score (487.39) than students with a low sense of self-efficacy (378.21; refer to Appendix JJ). A statistically significant difference was found between groups (F=151.03, p<.05). As seen in Appendix KK, male participants with a high sense of self-efficacy had a considerably higher mean score (477.55) compared to male students with a low sense of self-efficacy (375.43). A statistically significant difference was found between groups (F=86.19, p<.05). Similar results were found with female participants. As seen in Appendix LL, female participants with a high sense of self-efficacy had a substantially higher mean score (500.67) compared to female students with a low sense of self-efficacy (386.13). A statistically significant difference was found between groups (F=52.12, p<.05).

Pearson *r* analysis was used to determine the relationship, if any, between self-efficacy and reading score. A statistically significant difference (r=.235, p<.05) was found, which indicated a low degree of correlation between self-efficacy and reading performance among both male and female participants. When analysing the relationship between self-efficacy and performance among male participants, a low degree of correlation was found with a statistically significant difference (r=.257, p<.05). Comparably, a statistically significant difference (r=.191, p<.05) was found among female participants, which indicated a low correlation between self-efficacy and reading performance.

Pearson *r* testing was used to determine if a correlation existed between parental involvement with their child's reading experiences and self-efficacy. Analysis testing indicated that a statistically significant difference was found (r=.183, p<.05) among male and female participants, that showed a low degree of correlation between self-efficacy and parental involvement. When Pearson *r* testing was used to determine the relationship, if any, between male participants' sense of self-efficacy and parental involvement, results indicated a low degree of correlation with a statistically significant difference (r=.183, p<.05). Similarly for female participants, Pearson *r* analysis indicated a low degree of correlation between self-efficacy and parental involvement in reading, with a statistically significant difference (r=.152, p<.05).

Chi-square analysis was used to determine the association, if any, between socioeconomic status and self-efficacy among 13-year-old students. When all participants (male and female) were included in the testing, chi-square tests demonstrated that self-efficacy was associated with socioeconomic status; $\chi^2(54) = 312.08$, p<.05. As

seen in Appendix MM, students with a higher socioeconomic status had a decreased likelihood to have a low sense of self-efficacy (Std. Residual: -2.5). Students with a low socioeconomic status had an increased likelihood to have a low sense of self-efficacy (Std. Residual: 3.9). Specifically with male participants, chi-square analysis testing indicated that self-efficacy was influenced by socioeconomic status; $\chi^2(54) = 213.63$, $p<.05$. As seen in Appendix NN, male students with a higher socioeconomic status had an expected likelihood of having a low sense of self-efficacy (Std. Residual: -2.0). Students with a low socioeconomic status had an increased likelihood to have a low sense of self-efficacy (Std. Residual: 2.3). Similarly with female participants, chi-square analysis showed that an association existed between self-efficacy and socioeconomic status; $\chi^2(54) = 169.55$, $p<.05$. As seen in Appendix OO, female students with a low socioeconomic status had an increased likelihood to have a low sense of self-efficacy (Std. Residual: 4.6).

Summary of the Chapter

Chapter Four presented the findings of this research using PCAP-13 2007 data. The common theme that arises from the data is the notion that reading performance is essentially affected by numerous variables, both working independently and interdependently. In addition, some of the gaps within reading are greater with some groups of girls rather than between groups of boys, as much of the current boy crisis literature fails to examine. Chapter Five will further elaborate on the data found and make necessary connections between the variables that intercede between gender and reading performance.

CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS

Chapter Five begins with a summary of the purpose of this research, the overall design of the research, strategies used, and a discussion of the results that relate to current literature. The connection between the results and existing research is described within this section. Implications for practice, theory, and further research follow the discussion. As a conclusion, the author's final words will complete this chapter.

Summary of the Study

The purpose of this research was to investigate the factors that mediate between gender and success at reading comprehension, interpretation, and response to text using a feminist framework. Feminist theory discusses the importance of understanding where the differences lie in reading performance, all while not excluding girls when doing so. Variables, such as gender, socioeconomic status, parental involvement and influence, gender ideologies, and self-efficacy, were examined to determine the role they play in reading achievement. Both male and female students were tested separately, as well as within one homogeneous group.

This research was conducted as a secondary data analysis as the data used were compiled from PCAP-13 2007. A sample of approximately 30,000 students was included in the PCAP-13 2007 data from all Canadian provinces and the Yukon Territory. This research used approximately 20,000 student mean reading scores and approximately 30,000 student questionnaires to establish any relationships between dependent and independent variables.

The main themes that arise from this research and that are included in the following discussion are gender, socioeconomic status and reading score, gender

ideologies and reading, reading interest, parental involvement, reading preference, and self-efficacy.

Discussion

Boy crisis claims have become popular surrounding the media and educational literature which state that boys are underachieving in reading performance levels in comparison to their female counterparts. Although research has found that the reading performance level of boys has not surpassed that of girls, a deeper knowledge and understanding of which boys and which girls are underachieving is critical (AAUW, 2001; Martino, 2008; Mead, 2006). Such articles and discourses fail to recognise or discuss the underlining causes of the differences in reading scores. Responding to the boy crisis by testing and analysing variables that may affect reading achievement, this research serves to challenge existing literature and act as a beginning to understand where the differences may lie.

Research has indicated that boys are not as enthusiastic and motivated to read as girls are (Sokal et al., 2005). However, as Sokal et al. explain, this does not necessarily hold true for *all* boys, and these responses to reading are also experienced by some girls. Students who are engaged in what they are reading will ultimately gain a deeper understanding and comprehension of the reading material. A lack of motivation and desire to read will impede on one's reading and learning experiences. Such hindrances will affect a student's ability to read, comprehend, interpret, and respond to text. This should be addressed by facilitating a reading environment geared to support *all* students, and one that does not place boys and girls in separate categories. As seen in the boy crisis claims, having a "one approach" answer to the boy crisis will ignore many students,

both male and female (Kimmel, 2000; Martino, 2008; Mead, 2006). Rather, attempts should be made to carefully unravel and examine the layers that surround the underachievement in reading performance of all students. Establishing a gender-neutral reading environment at home and within the classroom will inspire more boys and girls to read. Early intervention by parents and educators; parental encouragement, involvement, and positive influences; and addressing students from low socioeconomic backgrounds are some of the ways to help improve reading achievement for all. Policy and discourse should be focussed on helping to improve the educational attainment of all students and not merely focus on the attainment of boys.

The remainder of this section will explain in detail how the various factors examined in this study connect to the current literature on reading achievement. In addition, a discussion is made on the importance of utilising theory into practise both within the home and classroom to further assist our students.

Gender, Socioeconomic Status, and Reading Score

As discussed by Martino (2008) and Mead (2006), factors pertaining to the underachievement of boys must be analysed and discussed. Both Martino and Mead explain that many reports declare a crisis without an analysis of the real reasons why boys are not achieving at the same level that girls are in reading performance. Such a discussion can alleviate what is labelled as the boy crisis by understanding where the crisis lies and how to address it. When comparing male and female students, the mean reading score results found in this research are compatible with the findings presented and discussed in educational journals and discourses (e.g., Chiu & McBride-Chang, 2006; Gambell & Hunter, 2000; Klinger et al., 2009; Singh, 2008; Weaver-Hightower,

2008). The mean reading score found for 13-year-old male students was less than the mean reading score for 13-year-old female students.

Consistent with current literature on how socioeconomic status is said to influence one's educational experiences and achievements (e.g., CMEC, 2009; Morgan et al., 2009), findings from this research also suggest that one's socioeconomic background plays an important role in reading achievement. When the sample population was tested, students with a low socioeconomic status achieved a lower mean score compared to students with a higher socioeconomic status. Test results also show that male participants with a lower socioeconomic status achieved a lower mean reading score when compared with female participants of the same socioeconomic background. Male students appear to be affected to a greater degree by socioeconomic status compared to female students. Remarkably, boys with a low socioeconomic background achieved 77.99 mean points lower than the standard reading mean of 500 compared to 41.7 mean points below for female students.

When analysing socioeconomic background, gender, and reading performance, data found in this research indicate that the gap between socioeconomic groups is significantly greater than the gender gap. A study conducted by Chatterji (2006) involving kindergarten students indicates that socioeconomic status was more of a factor in reading gaps than gender. The 2009 PISA results (OECD, 2013) also suggest that the gap between socioeconomic groups is more prominent than the reading gap between genders. Policy makers and educators should take these findings into consideration when discussing literacy and creating reading programs for children. Addressing gaps between

socioeconomic groups would prove to be more beneficial and worthwhile than attempting to close gender gaps as they are not as significant.

Gender Ideologies and Reading

As gender ideologies constantly surround us, students are also faced with influences that mould their perceptions. As kindergarten students refrained from engaging in activities not deemed appropriate according to their gender in research conducted by Blaise (2005), 13-year-old students may also hold preconceived notions about reading that may affect their views about what to read, how often to read, and who should read. How do student ideas about reading and gender affect reading performance? According to, *Boys will be "Boys": Variability in Boys' Experiences of Literacy* (Sokal et al, 2005), the perception of reading as feminine may deter boys from the activity of reading. In addition, the article discusses the notion that the reading material offered in school is not consistent with preferences among boys. When tested for this research, it is remarkable to point out that most students, both male and female, deemed the reading material used in their language arts classroom was more appropriate for males than females. Approximately 71% of male students in this sample indicated that the material used in their language arts classroom was more appropriate for boys than girls. Test results in this research show that male participants who believed that the material used in their language arts classroom was more appropriate for boys had a much higher mean reading score compared to boys who did not believe that the reading material used was more appropriate for boys.

It appears that the female participants still achieved a high mean reading score even though they considered the reading material to be geared towards boys. About 78%

of female participant responses were consistent with their male colleagues: the belief that the reading material used in their classroom was more suitable for males than females. Unlike the low mean reading score of the group of boys who felt that the material was better suited for girls, females who believed that the reading material was more appropriate for the opposite gender had a high mean reading score. Females who did not believe the material was better suited for males still maintained a high score. Interestingly, the mean difference between the female groups (those who believed the material was better suited for males compared to those who felt it was better suited for females) was not as great as their male counterparts. Although the majority of participants indicated that the material used in their language arts classroom was more appropriate for males, the mean score of male students appears to be affected to a greater degree than females by how they perceive the reading material to be.

Since perceptions on the reading material used in their language arts classroom greatly affects the mean reading score for boys, it was important to distinguish what causes male students to have such views. A large difference exists between the mean scores of both groups of male students: those who believe that the reading material used in the language arts classroom is more appropriate for males compared those who do not believe the material is more appropriate for males. As seen in Chapter Four, how often a parent/guardian reads at home was tested along with perceptions of the language arts reading material. Results indicate that an association exists between how often a father/male guardian or mother/female guardian reads at home and whether his/her son labels the reading material as more appropriate for one gender or the other. The more a father/male guardian reads at home, the less likelihood his son will believe that the

material used in his language arts classroom is more appropriate for girls. An association also exists between how often a mother/female guardian reads at home and how her son perceives the reading material used in the classroom. Tests indicate that the more often a mother/female guardian reads at home, the less likelihood her son will view his language arts reading material as being more suitable for girls. The opposite holds true for mothers/female guardians who rarely or never read at home. They have a greater likelihood that their son will view the material used in school as more applicable to females. Having either parent reading at home will encourage boys and girls to be comfortable with reading.

Reading Preference: Stories and Informational Text

Some boy crisis advocates indicate that boys are lacking in reading performance because of the absence of boy-friendly reading material available to them in the classroom. "Me read? No way! A practical guide to improving boy's literacy skills" produced by the Ontario Ministry of Education (2004) outlines various strategies and boy-friendly reading material that educators and parents can use to help improve the reading interest and achievement of male students. As Sokal et al. (2005) explain in their research, although boy-friendly books can benefit some male students, it is not the complete solution. This research found that reading preference appears to have an effect on reading achievement. The two preferences given in the PCAP-13 2007 questionnaire were reading for information and reading stories. Test results conducted for this research show that both male and female students who prefer to read stories achieved a higher mean reading score compared to students who prefer to read for information. It appears that the difference in the mean score among females in this category was greater than that

among male participants. The mean reading score of female students who prefer to read for information was nearly the same as that of male students with the same preference, approximately 50 mean points below the mean standard of 500.

An association was found between the reading preference of male participants and how often their parent/guardian reads at home. Nearly 55% of male students indicated that their mother/female guardian read at home frequently, while only 31% indicated that their father/male guardian did. Male parents were twice as likely to rarely or never read at home as female parents. Test results indicate that a father/male guardian or mother/female guardian who reads at home often has a greater possibility of having a son who will prefer to read stories. Of the sample that chose they would rather read stories, approximately 65% revealed that their mother/female guardian read at home frequently. Only 13% of male students in this category stated that their mother/female guardian rarely or never read at home. It appears that the frequency of reading at home among fathers/male guardians was somewhat evenly distributed among the categories. However, it is worthwhile to distinguish that approximately 32% of male students who would rather read stories indicated that their father/male guardian often read at home, while 28% indicated that their father/male guardian rarely or never read at home. One can conclude that the frequency of a mother/female guardian reading at home is more influential to a son than a father/male guardian.

There is much discussion about the reading preferences of boys in literature; however, it is beneficial to analyse how female students are affected by reading preferences as well. An association was found between how often a parent/guardian read at home and his/her daughter's reading preference. Female students in this study who

have a mother/female guardian or father/male guardian who reads at home often would rather read stories than read for information. It is interesting to note that approximately 54% of female students indicated that their female parent frequently read at home, while only 13% do not. More than half of the female students who would rather read stories revealed that their mother/female guardian read at home frequently. Only 12% of females who would rather read stories stated that their mother rarely or never read at home. With regards to the male parents, approximately 30% of girls stated that their father/male guardian often read at home, while 29% rarely or never did. Approximately 30% of girls who prefer to read stories revealed that their male parent read at home often, while 29% rarely or never read. It appears that the frequency of a mother/female guardian reading at home has more of an effect on a daughter than a father/male guardian. However, it is noteworthy to reiterate that test results indicate that students who prefer to read stories achieved a higher mean reading score. Hence, it is important to remember that both parents, regardless of gender, play a vital role in their child's educational experiences and attainment.

Reading Interest

Educators and parents alike can easily come to the conclusion that students with an interest in literature tend to perform well in reading, writing, and comprehension. In *Reading for Change: Performance and Engagement Across Countries. Results from PISA 2000*, the authors explain that all students, but especially boys, must be motivated to read and must increase their interest in reading (Kirsh et al., 2002). Test results for this research found that students with a high level of reading interest within their language arts classroom had a higher mean score than students with low interest. It appears that

only approximately 5% of male participants in this study indicated that they had a lot of reading interest within the language arts classroom, with 24% reported as "more than a little" interest. About 26% stated they had no interest at all. With the female participants, approximately 7% indicated they had a lot of reading interest within the language arts program, with 30% as "more than a little." Although more female participants had a higher interest level corresponding to a higher mean reading score than males, the mean difference was greater between the female groups (i.e., reading interest as "not at all" versus "a lot") compared to the male groups. When popular discourses discuss closing the achievement gaps of male students (e.g., Kafer, 2007; Ontario Institute for Studies in Education, 2009b), perhaps one should look at how to minimize the gaps that appear to be existent with reading achievement between groups of female students as well.

In order to understand reading interest to a greater degree, this research tested whether an association exists between reading interest and socioeconomic background. Tests indicate that male participants with a low socioeconomic background reported to have a decreased interest with the reading in their language arts program. Male students with a high socioeconomic background tend to show greater interest in the reading material used in their classroom. Similar results became apparent with the female participants. Students with a low socioeconomic background had a decreased interest in the reading materials used in school. Female students with a high socioeconomic status had a higher interest with the reading done in school. As socioeconomic factors play a role in reading achievement levels and reading interest among male and female students, it is important for families to work together with their child's school and teacher. As

one's socioeconomic status may not easily be altered, strategies that will aid in assisting all students are discussed later in this chapter under Implications.

Parental Involvement

As discussed by Christina Clark and Kate Rumbold (2006) in, *Reading for pleasure: A research overview*, having a positive and influential reading environment at home is essential for a child's literacy. Early reading experiences with parents are imperative in fostering a positive attitude with reading and literacy. As found in this research, students whose parent(s) read to them when they were younger achieved greater reading score means compared to students whose parent(s) did not read to them when they were younger. Male participants who indicated that their parent(s)/guardian(s) rarely or never read to them when they were younger had a significantly lower mean reading score than participants who were read to when they were younger. Results also indicate that male students who received parental encouragement for reading achieved a substantially higher mean score compared to male participants whose parent(s)/ guardian(s) rarely or never encouraged them to read. Similar results were found with female students: A much higher mean reading score was found when parent(s) encouraged their daughter to read. It appears that the data found in this research suggest that boys whose parent(s)/guardian(s) rarely or never encouraged them to read had a much lower mean score compared to female students in the same category (a difference of 37.98 points). Data also reveal that the mean score difference was greater between male than female students whose parent(s) rarely or never encouraged them to read compared to parent(s) who often encouraged them to read (a mean difference of 62.91 for

males versus a mean difference of 43.08 for females). It appears that boys are affected to a greater extent by parental encouragement to read and involvement than girls are.

Parental Influence

As children absorb implicit and explicit messages every day, educators and parents must realize that students also retain what they see around them with regards to reading and literacy. Many of the ideologies surrounding reading are formulated by observations at home, in school, and in society. One aspect of this study was to analyse reading achievement and how it may be influenced by the frequency of how often parents/guardians read at home. Test results show that the mean reading score of 13-year-old male students was higher if their mother/female guardian read at home often compared to if she rarely or never read at home. Similar results occurred with how often a male student's father/male guardian read at home. However, test results show that male students seem to be affected to a greater degree if they have a mother/female guardian who rarely or never reads at home compared to if they have a father/male guardian who rarely or never reads at home. The mean reading score of boys whose mother/female guardian rarely or never reads at home was 17.8 points less than the mean score of boys whose father/male guardian rarely or never read at home. When looking at the mean reading score of male students whose mother or father often read at home, the mean score was very similar with both groups and there did not appear to be a great difference (i.e., a difference of 0.38 points). When comparing both extremes, test results indicate that there is a greater difference when looking at how often the female parent reads at home (a mean difference of 44.47 points between groups) compared to how often the male parent reads at home (a mean difference of 26.29).

With respect to the female participants, similar conclusions can be made. The mean reading score was greater when parents (both mother/female guardian and father/male guardian) often read at home compared to if they rarely or never read at home. Consistent with the results from the male sample, it appears that the mean score of 13-year-old female students in this study was negatively affected to a greater degree if their mother/female guardian rarely or never read at home compared to if their father/male guardian rarely or never read at home. Test results show a mean difference of 33.53 between both groups of female parents and 25.75 mean points between both groups of male parents.

When comparing between male and female participants, a slightly greater gap exists for male students whose parent, according to gender, rarely or never reads at home. Male students achieved 17.8 mean points lower if their mother/female guardian rarely or never read at home compared to if their father/male guardian rarely or never read at home. Female students who indicated that their mother/female guardian rarely or never read at home achieved 11.65 mean points lower than participants whose father rarely or never did. Results indicate that the mean score of boys was fairly equal when comparing mothers and fathers who often read at home. Interestingly, the mean score of females was slightly greater when a father/male guardian compared to a mother/female guardian often read at home. As well, when analyzing the difference between the mean reading score of female participants and comparing how often their mother/female guardian reads at home, it appears that there is not as great of a mean difference between categories as was found with the male participants.

Self-Efficacy

Self-efficacy is believed to be influential toward one's educational attainment, as it affects one's motivation, perseverance, and emotions (Zimmerman, 2000). Individuals who have a strong sense of self-efficacy are said to be more resilient when faced with difficult challenges that can surface within any learning experience. Test results in this research indicate that both male and female students who had a higher sense of self-efficacy had a significantly higher mean reading score compared to students with a lower sense of self-efficacy, with a remarkable mean difference of 109.19 points between both groups (i.e., a weak sense of self-efficacy versus a strong sense of self-efficacy). When both groups of male participants were tested, a mean difference of 102.12 points was evident. When analysing female participants, the mean difference between both groups was an astonishing 114.54. Although one's sense of self-efficacy evidently affects reading performance to a substantial degree, it appears that the mean reading score gap is greater between females than males.

Since test results indicate that self-efficacy and reading achievement are associated, further testing was conducted to determine what factors contribute to one's sense of self-efficacy. Test results demonstrate that socioeconomic status affects self-efficacy with both male and female participants. Taking gender into consideration, both male and female students appear to show similar results. Of students with a reported high sense of self-efficacy, 6% of males and 8% of females were from a low socioeconomic background compared to 29% of males and 23% of females who were from a higher socioeconomic background.

Implications

Many implications arise from this research that aim to promote dialogue and thought surrounding issues of the boy crisis, all while not ignoring the girls. Discussions found in the sections titled Implications for Practice, Implications for Theory, and Implications for Future Research encourage and promote strategies geared to assist all students, of all levels, and from all backgrounds. It serves as a beginning to understanding issues in reading performance among girls and boys. A brief synopsis in Final Words highlights the force and reason behind this research and concludes this chapter.

Implications for Practice

Consistent with the research on reading and literacy skills, 13-year-old Canadian girls were found to have a higher mean reading score compared to 13-year-old Canadian boys in this investigation. However, as seen in this research, many variables contributed to the results that were found. Factors such as influences within the home, socioeconomic status, gender ideologies, reading preferences, interest in reading, and self-efficacy, all influenced reading achievement. In addition, some gaps within the female groups were wider than the male groups in the same categories. Some intercessions, such as more male teachers and introducing boy-friendly reading materials within the home and classroom, are "oversimplified responses to boys' learning needs" (Sokal et al., 2005, p. 224). Further resources and research must be conducted to improve the reading achievement of all students, male and female.

Socioeconomic status. Socioeconomic background clearly influences reading performance as found and discussed in this research, in public reports such as *PISA 2009*

Results: Overcoming Social Background – Equity in Learning Opportunities and Outcomes (CMEC, 2009) and within literature on literacy (e.g., AAUW, 2001; Kimmel, 2008; Martino, 2008; Mead, 2006; Okopny, 2008). The gap found in this research between socioeconomic groups is significantly greater than the gap evident between male and female students. The mean score gap between socioeconomic groups of males compared to socioeconomic groups of females was slightly greater for males. As socioeconomic status appears to influence reading performance to a greater degree than gender, a shift in the boy crisis paradigm should occur. The gaps found indicate that research and literature should focus on helping to improve the performance of boys and girls from lower socioeconomic backgrounds and not only on gender. Discourse and policy amendments are needed that concentrate on closing such gaps, rather than contributing to the current attention and constant comparison between boys and girls. Socioeconomic factors within literacy should be accounted for when discussing the boy crisis and when formulating reading programs for children. Educators and schools should facilitate programs that assist students of lower socioeconomic backgrounds, and refrain from creating programs wherein not all students have the means to participate.

The home. As the home becomes the first learning environment for most children, it is essential to understand the importance of establishing rich learning experiences that will enable children to become confident, competent, and independent learners. Parents and guardians must realize that they are primarily the most influential people in a child's life at an early age. As discussed by Flouri and Buchanan (2004), parental encouragement and involvement are *more influential* to a child's educational attainment than socioeconomic status. Being an influential role model by reading at

home will positively affect a child's attitudes towards reading. Parents who often read at home are sending their children the message that reading is a viable and valuable part of your everyday life. Simply reading the newspaper or a novel at home encourages young viewers to do the same. Perhaps their means of reading may differ than that of the older generation (i.e., reading using technology, such as computers, an E-book reader, an iPad, and tablet), but having an abundance of reading material available (either at home or at a local library) is essential to a child's experiences with reading and literacy. And as children become comfortable and excited to read, they will begin to read for pleasure. As Clark and Rumbold (2006) explain, children who read for pleasure gain positive reading experiences, greater reading comprehension skills, confidence, and an increase in their vocabulary.

As found in this research, students with a higher socioeconomic background appear to surpass students with a lower socioeconomic background in reading achievement. However, it has been indicated in some large-scale assessment reports (e.g., OECD, 2010) that students with low achievement scores in school do not necessarily have low socioeconomic backgrounds. Parents with a lower *or* higher socioeconomic background should consider spending quality reading time with their child to help build reading and literacy skills. Family trips to the local community library can excite children beginning at an early age and ignite the desire for books. Creating a home library with a variety of reading materials suitable for readers of all ages can help establish a love for reading and learning. Browsing the internet with children about topics of interest can help intensify the drive to read and learn as information is available at their fingertips. Most importantly, reading to children is essential in establishing a

positive reading environment that will enhance reading comprehension and literacy skills. Such rich and positive experiences will accompany them throughout their educational journey and throughout life.

In addition to influencing a child to read, being involved in the reading process and encouraging children to read is an essential element towards reading performance (Flouri & Buchanan, 2004). As seen in this research, students attain higher reading scores when they receive parental encouragement and praise for reading. As parents read to their child, they help foster and enrich their child's comprehension, vocabulary, and literacy skills that are critical in developing a self-efficacious individual. As Bandura (1994) states, individuals with a high sense of self-efficacy are able to motivate themselves to overcome obstacles, leading to achievement. As also explained by Zimmerman (2000), self-efficacy and educational attainment are related and crucial for a child's learning experiences. Parental encouragement leads to a heightened sense of confidence with reading, which ultimately can improve reading achievement.

Reading preference. Reading stories, whether it is a storybook or a novel, fiction or nonfiction, can help enrich and foster a vivid imagination. Although results in this study indicate that students who prefer to read stories achieved a higher mean reading score, one cannot disregard the importance of reading for information. Encouraging children of both genders to read numerous materials, from comic books to magazines to biographies and various topics from sports to recipes to wildlife, will promote reading and engage students. As children are engaged in what they are reading, they will more likely become excited readers who will continuously have a desire to read.

Having an environment at home and school with an abundance of reading material of various topics will encourage students to read. As some resources suggest to provide certain reading materials for certain genders (e.g., Ontario Ministry of Education, 2004; Ontario Institute for Studies in Education, 2009a; Ontario Institute for Studies in Education, 2009b), doing so will only perpetuate gender roles (White, 2007). Suggestions have been made by Sokal et al. (2005) to include boy-friendly reading topics such as animals, volcanoes, sports, and the *Captain Underpants* series. However, doing so may continue to influence attitudes about gender, as well as gender attitudes toward reading. Resisting to comply with existing literature will challenge gender ideologies rather than assist them. In, *Me Read? No Way! A Practical Guide to Improving Boys' Literacy Skills* by the Ontario Ministry of Education (2004), Moloney (2005) states that boys like to read:

- books that make them laugh and appeal to their sense of mischief
- fiction, but preferably fiction that focuses on action more than on emotions; . . .
- newspapers, magazines, comic books, baseball cards, and instruction manuals. (p. 8)

Such a statement places all boys in one category; the category popularized by society. Such boy-friendly materials will further reinforce gender differences and tell our young population that boys (and not girls) should be mischievous, should enjoy action-packed thrills and sports, and should be "handy." In essence, further tolerating the division between the sexes will continue to support the notion that certain activities are deemed more appropriate for certain genders, such as reading as being a "girl's" activity.

Educators who oppose gender-inclusive strategies within the classroom can cause detrimental effects on not only the educational attainment and experiences of girls, but for boys as well (Johnson, 2005; Weaver-Hightower, 2003; White, 2007).

Reinforcing gender differences through literature will further widen the gap in reading achievement. If boys and girls are consistently faced with reading material that reinforces gender roles and norms, gender ideologies will prevail. Social norms about reading will persist and children will continue to view reading as feminine. When boys view reading as feminine, they tend to shy away from the activity, further widening the gap between girls' and boys' reading achievement. Students should be encouraged to view and experience reading as a gender-neutral activity where both males and females can enjoy reading and all that it encompasses without any labels.

Implications for Theory

Results found in this study challenge boy crisis claims by examining the variables that may contribute to reading performance. Although the reading scores of males were found to be lower than that of females, understanding where the differences are is crucial. The information gathered by PCAP allows researchers to study factors that pertain to reading achievement gaps. As Mead (2006) and Martino (2008) suggest, understanding where the crisis lies in reading achievement is a critical beginning to addressing the boy crisis. This research set out to determine the factors that mediate between gender and success at comprehension, interpretation, and response to text. By examining how factors may influence reading achievement, the association between variables, and the effect the variables have in relation to gender, this research attempts to begin the process of understanding why some students are not achieving as well as others. By uncovering

which variables influence reading achievement using a feminist framework, one can begin to understand how to support both male and female students. Due to time restraints, this research was not able to investigate all possible factors, but it would, indeed, be worthwhile.

Findings in this research surrounding socioeconomic status and reading achievement is consistent with research conducted from Sokal et al. (2005). Sokal et al. found that socioeconomic status influenced the reading achievement of Grade 2 Canadian boys. As similar results were found in this research including female participants from a lower socioeconomic background, girls should not be excluded in the discourse and deserve to be included in current literature. Since the gap between socioeconomic groups is greater than the gap between genders, less focus should be given to the "boys versus girls" debate and more attention is needed to help facilitate meaningful learning environments for all students in both public and private domains. Educational discourses, policy makers, and educators should strive to improve the reading experiences and performance of students from lower socioeconomic backgrounds within the classroom. Parents of all socioeconomic backgrounds should be involved with their child's educational experiences, encourage their children to read, and be positive and influential role models.

In addition, one must realize that not *all* boys are underachieving, and that some gaps exist with the achievement of girls as well. One of the largest gaps found in this research involved self-efficacy and reading performance scores. Although both gaps were consistently large, the gap between the two groups of girls was greater than that of the boys. Improving one's sense of self-efficacy is vital in nourishing confidence levels

in reading and should be addressed when discussing reading literacy. As recognised in feminist theory, educational policies should include both girls and boys in discourses surrounding reading and literacy and examine *which* boys and *which* girls are underachieving. The findings in this research are harmonious with feminist theory in the sense that a greater understanding and acknowledgement of the various factors that contribute to the reading performance of all students are essential. Such knowledge will aid in developing programs, initiatives, and resources that will ultimately help improve the reading and comprehension skills of *all* students.

Implications for Further Research

Many further research opportunities are available from this introduction of the factors that pertain to reading achievement. Interesting questions arise from the findings and discussion, and a greater understanding of the variables that may affect reading performance can be addressed in future research. Separate results from each province or territory were not taken into consideration in this research. Because this study analysed the entire population from the sample, it would be interesting to perform similar tests according to each province and territory. Results may differ depending on which sample of students is investigated. There may be a greater issue with the reading performance of either gender, for example, or socioeconomic status, within a certain province or territory that needs to be addressed.

Determining one's socioeconomic status using the level of education completed by a mother/female guardian limits this research. Many factors from this research regarding socioeconomic background arise with the completed PCAP student questionnaires. Primarily, students may not have accurately and carefully completed the

questionnaires. For example, not knowing what level of education their mother/female guardian has can cause the results to be skewed. Using the level of education of a mother/female guardian may also affect results as this indicator may not accurately reflect the socioeconomic status of the students in the sample. Although a mother/female's level of education has been used to predict socioeconomic status (e.g., Currie & Goodman, n.d.; De Graaf, 1986; Miller & Rodgers, 2009), it would be interesting to conduct further studies using other measures to indicate socioeconomic status. Further research connecting socioeconomic status with self-efficacy would be constructive and worthwhile, as this research found significant differences between the mean reading scores based on self-efficacy. Using other measures to determine how socioeconomic status influences self-efficacy would be valuable for all students.

It would also be beneficial to consider analysing the type of reading material 13-year-old students prefer to read in their spare time. The two options available for the sample population in this study were reading for information and reading stories. Many other categories are not included in the student questionnaire. Comic books, magazines, brochures, and newspapers, for example, are not included in the question. Although a comic book, for example, can be seen as a "story," a 13-year-old may not easily make that link. As Clark and Rumbold (2006) explain, there is no definitive understanding of what children prefer to read, although many researchers attempt to uncover this. Instead of using a wide-based conception of what students prefer to read founded from other research, asking the sample being studied would help understand the participants and their reading needs. Analysing what students prefer to read and cross-referencing this

with their reading achievement may further assist in the understanding of reading preference and reading score.

Final Word

Although this research just begins to unravel the layers that surround issues of the boy crisis, it is no doubt a critical start. One should come to the understanding that although boy crisis literature declares that a serious crisis prevails, not all boys are affected and some girls are. By analysing factors that pertain to the underachievement, as well as to the achievement, in reading performance, parents, educators, and policy makers can create learning environments and reading programs that enable all children to learn. Resisting the pressure to formulate reading programs that only empower gender-exclusivity will support gender-neutral educational environments that will help all students achieve.

On Monday, July 22, 2013, a landmark in a large city was lit up blue to celebrate with the world the royal birth of a baby boy of Prince William and Kate, the Duchess of Cambridge. *Blue.* My fear is that these constant reinforcements of gender ideologies seen every day through parents, teachers, the media, skyscrapers, will constantly hold us back and hinder our strive for a world that does not dictate what colours are suitable or not for a certain gender. Segregating the males from females in our libraries, providing "action packed" books full of "mischief" for boys (and not girls), and single sex classrooms are inadequate solutions. As subtle as these messages are, we are declaring to our children that our gender determines our behaviour, success, engagement, or disengagement in school, whether or not we should be interested in reading, and what type and genres of reading material we should enjoy. Encouraging boys and girls that

reading is a gender-neutral activity is a positive step towards the reading success of all students.

This research was created in an attempt to uncover the reasons behind the differences in reading performance scores not only between boys and girls, but between groups of boys and groups of girls. Discussions on how to implement a gender-neutral reading (and learning) environment has been developed throughout this paper. By including girls when discussing literacy, not only focussing on the reading performance scores and comparisons between the genders, and taking into account other contributing variables, we will provide the necessary foundations needed to support our students. By giving every child the ability, means, encouragement, and atmosphere to prevail, they will.

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Appendix A

Male versus Female Mean Reading Score

Group Statistics

	Are you male or female?	N	Mean	Std. Deviation	Std. Error Mean
READ500	Male	9695	467.9709	97.26863	.98787
	Female	10047	493.1759	96.10784	.95883

Appendix B

Male and Female Mean Reading Score and Socioeconomic Status

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Did not complete high school	1327	442.6972	98.85504	2.71371	437.3736	448.0208	155.87	702.97
Completed high school	2910	469.7799	94.45986	1.75106	466.3464	473.2133	4.17	758.10
Had some education after high school	1946	484.4003	90.28165	2.04658	480.3866	488.4140	134.31	833.54
Completed education at a college or cégep	2719	490.7029	91.39039	1.75265	487.2662	494.1396	142.84	861.51
Had some university education but did not complete a degree	728	489.0533	99.28470	3.67974	481.8291	496.2774	132.14	778.54
Completed one or more university degrees	5230	509.5326	95.89629	1.32602	506.9330	512.1321	124.59	876.74
I don’t know	4643	460.0516	96.57228	1.41727	457.2730	462.8301	4.17	773.07
Total	19503	481.3766	97.38271	.69732	480.0098	482.7434	4.17	876.74

Appendix C

Male Mean Reading Score and Socioeconomic Status

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Did not complete high school	559	422.0100	101.70579	4.30170	413.5606	430.4595	155.87	693.64
Completed high school	1348	458.0050	94.67125	2.57854	452.9466	463.0634	4.17	758.10
Had some education after high school	894	474.2245	90.28896	3.01971	468.2980	480.1511	134.31	739.86
Completed education at a college or cégep	1278	474.8856	90.11160	2.52067	469.9405	479.8307	142.84	837.51
Had some university education but did not complete a degree	368	475.4362	93.67521	4.88316	465.8337	485.0387	132.14	712.32
Completed one or more university degrees	2686	494.1433	94.21419	1.81787	490.5787	497.7078	127.56	774.97
I don’t know	2432	451.5243	98.63527	2.00009	447.6022	455.4463	4.17	773.07
Total	9565	468.8438	97.07125	.99254	466.8982	470.7894	4.17	837.51

Appendix D

Female Mean Reading Score and Socioeconomic Status

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Did not complete high school	764	458.2974	93.90523	3.39737	451.6281	464.9667	181.24	702.97
Completed high school	1561	479.9370	93.14696	2.35758	475.3127	484.5614	154.14	738.67
Had some education after high school	1047	493.5754	89.10788	2.75387	488.1717	498.9791	160.04	833.54
Completed education at a college or cégep	1438	504.7762	89.97581	2.37272	500.1218	509.4305	166.43	861.51
Had some university education but did not complete a degree	359	503.6379	102.35743	5.40222	493.0138	514.2620	208.26	778.54
Completed one or more university degrees	2532	526.2857	94.53587	1.87873	522.6016	529.9697	124.59	876.74
I don’t know	2201	469.7523	93.20765	1.98674	465.8562	473.6484	136.12	758.10
Total	9902	493.7637	95.92309	.96397	491.8742	495.6533	124.59	876.74

Appendix E

Male Mean Reading Score and Language Arts Material Seen as More Appropriate for Males

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
A lot	6713	481.9003	92.39816	1.12773	479.6895	484.1110	31.19	837.51
More than a little	2012	448.1774	96.75031	2.15694	443.9473	452.4075	114.27	725.87
A little	581	420.3741	100.92158	4.18693	412.1507	428.5975	4.17	723.81
Not at all	147	416.4782	104.24419	8.59792	399.4858	433.4707	174.24	715.94
Total	9453	469.9237	96.14999	.98893	467.9852	471.8622	4.17	837.51

Appendix F

Male Mean Reading Score and Language Arts Material Seen as More Appropriate for Females

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Not at all	6296	483.2781	92.90159	1.17082	480.9829	485.5733	4.17	837.51
A little	2094	446.0429	94.68448	2.06914	441.9851	450.1006	148.68	713.69
More than a little	762	440.3763	101.11407	3.66298	433.1856	447.5670	142.84	715.05
A lot	320	425.9816	103.73360	5.79888	414.5727	437.3905	143.11	723.81
Total	9472	469.6593	96.34161	.98990	467.7189	471.5998	4.17	837.51

Appendix G

Female Mean Reading Score and Language Arts Material Seen as More Appropriate for Males

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
A lot	7689	501.1609	92.90598	1.05952	499.0839	503.2378	154.14	876.74
More than a little	1721	474.3218	99.19737	2.39117	469.6319	479.0117	124.59	778.54
A little	355	454.3779	102.21773	5.42515	443.7083	465.0475	208.26	681.96
Not at all	105	471.4388	99.50530	9.71072	452.1821	490.6955	264.08	670.32
Total	9870	494.4822	95.32693	.95953	492.6013	496.3630	124.59	876.74

Appendix H

Female Mean Reading Score and Language Arts Material Seen as More Appropriate for Females

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Not at all	7544	500.1174	92.41173	1.06396	498.0318	502.2031	154.14	861.51
A little	1728	478.8698	97.62133	2.34840	474.2637	483.4758	136.12	785.67
More than a little	486	467.6813	114.15418	5.17814	457.5069	477.8556	124.59	876.74
A lot	122	467.6119	110.79895	10.03127	447.7523	487.4714	264.08	736.29
Total	9880	494.4043	95.32991	.95907	492.5243	496.2843	124.59	876.74

Appendix I

Frequency of Father/Male Guardian Reading at Home and Language Arts Material Seen as More Appropriate for Females by Male Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for girls than boys * How often do your parents read at home? My father/male guardian Crosstabulation

			How often do your parents read at home? My father/male guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for girls than boys	Not at all	Count	2496	3093	2855	467	8911
		Std. Residual	-1.1	-.5	1.6	.0	
	A little	Count	959	1166	908	154	3187
		Std. Residual	1.5	1.5	-2.6	-1.0	
	More than a little	Count	321	402	352	51	1126
		Std. Residual	-.1	.4	.1	-1.0	
	A lot	Count	150	143	149	47	489
		Std. Residual	.8	-2.2	-.2	4.2	
Total		Count	3926	4804	4264	719	13713

Appendix J

Frequency of Father/Male Guardian Reading at Home and Language Arts Material Seen as More Appropriate for Males by Male Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls * How often do your parents read at home? My father/male guardian Crosstabulation

			How often do your parents read at home? My father/male guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls	A lot	Count	2704	3319	3003	491	9517
		Std. Residual	-.3	-.3	.7	-.4	
	More than a little	Count	901	1088	893	148	3030
		Std. Residual	1.2	.8	-1.6	-.9	
	A little	Count	235	338	289	52	914
		Std. Residual	-1.6	1.0	.3	.6	
	Not at all	Count	70	57	78	28	233
		Std. Residual	.4	-2.7	.6	4.5	
Total		Count	3910	4802	4263	719	13694

Appendix K

Frequency of Mother/Female Guardian Reading at Home and Language Arts Material Seen as More Appropriate For Females by Male Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for girls than boys * How often do your parents read at home? My mother/female guardian Crosstabulation

			How often do your parents read at home? My mother/female guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for girls than boys	Not at all	Count	1195	2510	5056	265	9026
		Std. Residual	-1.9	-.7	2.1	-2.5	
	A little	Count	490	985	1666	115	3256
		Std. Residual	1.6	2.2	-2.5	.3	
	More than a little	Count	175	307	614	56	1152
		Std. Residual	1.1	-1.0	-.5	2.6	
	A lot	Count	88	123	245	41	497
		Std. Residual	2.2	-1.4	-1.5	5.8	
Total		Count	1948	3925	7581	477	13931

Appendix L

Frequency of Mother/Female Guardian Reading at Home and Language Arts Material Seen as More Appropriate for Males by Male Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls * How often do your parents read at home? My mother/female guardian Crosstabulation

			How often do your parents read at home? My mother/female guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls	A lot	Count	1267	2671	5422	286	9646
		Std. Residual	-2.1	-.9	2.3	-2.5	
	More than a little	Count	473	897	1590	127	3087
		Std. Residual	2.1	.9	-2.2	2.0	
	A little	Count	153	283	457	45	938
		Std. Residual	1.9	1.2	-2.4	2.2	
	Not at all	Count	45	67	103	21	236
		Std. Residual	2.1	.1	-2.2	4.5	
Total		Count	1938	3918	7572	479	13907

Appendix M

Frequency of Father/Male Guardian Reading at Home and Language Arts Material Seen as More Appropriate for Males by Female Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls * How often do your parents read at home? My father/male guardian Crosstabulation

			How often do your parents read at home? My father/male guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls	A lot	Count	3229	3861	3336	625	11051
		Std. Residual	-.3	-.5	.9	.0	
	More than a little	Count	731	939	659	144	2473
		Std. Residual	.2	2.3	-2.8	.3	
	A little	Count	159	158	174	25	516
		Std. Residual	.6	-1.8	1.7	-.8	
	Not at all	Count	47	39	45	8	139
		Std. Residual	1.0	-1.4	.6	.0	
Total		Count	4166	4997	4214	802	14179

Appendix N

Frequency of Mother/Female Guardian Reading at Home and Language Arts Material Seen as More Appropriate for Females by Female Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for girls than boys * How often do your parents read at home? My mother/female guardian Crosstabulation

			How often do your parents read at home? My mother/female guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for girls than boys	Not at all	Count	1400	3317	5903	289	10909
		Std. Residual	-1.3	.7	.6	-2.0	
	A little	Count	381	750	1381	91	2603
		Std. Residual	1.9	-1.2	-.4	1.5	
	More than a little	Count	102	216	364	36	718
		Std. Residual	.7	.0	-1.1	3.1	
	A lot	Count	36	57	100	15	208
		Std. Residual	1.6	-.7	-1.1	3.5	
Total		Count	1919	4340	7748	431	14438

Appendix O

Frequency of Mother/Female Guardian Reading at Home and Language Arts Material Seen as More Appropriate for Males by Female Students

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls * How often do your parents read at home? My mother/female guardian Crosstabulation

			How often do your parents read at home? My mother/female guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is more appropriate for boys than girls	A lot	Count	1426	3381	6108	302	11217
		Std. Residual	-1.5	.1	1.1	-1.9	
	More than a little	Count	356	760	1316	94	2526
		Std. Residual	1.2	.0	-1.1	2.1	
	A little	Count	102	152	251	31	536
		Std. Residual	3.7	-.7	-2.2	3.7	
	Not at all	Count	24	44	70	5	143
		Std. Residual	1.2	.2	-.8	.3	
Total		Count	1908	4337	7745	432	14422

Appendix P

Male Mean Reading Score and Preference of Reading Information versus Stories

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Strongly disagreel	2403	475.3731	98.22428	2.00374	471.4439	479.3024	4.17	837.51
Disagree	3588	485.8252	93.39639	1.55921	482.7682	488.8822	127.56	778.54
Agree	2211	447.9414	94.10148	2.00125	444.0169	451.8659	4.17	752.20
Strongly agree	1219	447.2568	96.83849	2.77361	441.8152	452.6984	142.84	773.19
Total	9421	469.2779	96.72157	.99649	467.3245	471.2312	4.17	837.51

Appendix Q

Female Mean Reading Score and Preference of Reading Information versus Stories

READ500

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Strongly disagreel	3530	501.9867	93.20151	1.56868	498.9111	505.0624	136.12	851.91
Disagree	4595	500.3282	94.73507	1.39755	497.5883	503.0680	124.59	876.74
Agree	1286	463.4884	98.68332	2.75184	458.0898	468.8869	154.14	861.51
Strongly agree	447	450.7161	92.13435	4.35781	442.1517	459.2805	190.27	740.96
Total	9858	493.8666	95.88688	.96575	491.9736	495.7597	124.59	876.74

Appendix R

Male Reading Preference and Frequency of Father/Male Guardian Reading at Home

How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories * How often do your parents read at home? My father/male guardian Crosstabulation

			How often do your parents read at home? My father/male guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories	Strongly disagreel	Count	1115	1156	1066	220	3557
		Std. Residual	3.1	-2.5	-1.2	2.3	
	Disagree	Count	1297	1844	1678	242	5061
		Std. Residual	-3.9	1.7	2.6	-1.6	
	Agree	Count	931	1195	937	155	3218
		Std. Residual	.4	2.0	-2.0	-1.2	
	Strongly agree	Count	525	549	535	100	1709
		Std. Residual	1.7	-2.0	.1	1.0	
Total		Count	3868	4744	4216	717	13545

Appendix S

Male Reading Preference and Frequency of Mother/Female Guardian Reading at Home

How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories * How often do your parents read at home? My mother/female guardian Crosstabulation

			How often do your parents read at home? My mother/female guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories	Strongly disagreel	Count	551	957	1936	158	3602
		Std. Residual	2.4	-1.8	-.6	2.9	
	Disagree	Count	586	1451	2962	133	5132
		Std. Residual	-4.7	.2	3.1	-3.4	
	Agree	Count	481	1009	1686	107	3283
		Std. Residual	1.3	2.8	-2.5	-.7	
	Strongly agree	Count	285	454	918	80	1737
		Std. Residual	2.9	-1.6	-1.0	2.5	
Total		Count	1903	3871	7502	478	13754

Appendix T

Female Reading Preference and Frequency of Mother/Female Guardian Reading at Home

How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories * How often do your parents read at home? My mother/female guardian Crosstabulation

			How often do your parents read at home? My mother/female guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories	Strongly disagree	Count	693	1498	2873	144	5208
		Std. Residual	.0	-1.7	1.5	-1.0	
	Disagree	Count	778	2042	3608	182	6610
		Std. Residual	-3.4	1.3	1.0	-1.2	
	Agree	Count	319	574	869	70	1832
		Std. Residual	4.8	1.0	-3.6	2.0	
	Strongly agree	Count	110	183	325	34	652
		Std. Residual	2.5	-.9	-1.3	3.3	
Total		Count	1900	4297	7675	430	14302

Appendix U

Female Reading Preference and Frequency of Father/Male Guardian Reading at Home

How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories * How often do your parents read at home? My father/male guardian Crosstabulation

			How often do your parents read at home? My father/male guardian				Total
			Rarely or never	Sometimes	Often	Not applicable	
How much do you agree or disagree with the following statements about reading: I would rather read for information than read stories	Strongly disagreel	Count	1577	1755	1508	277	5117
		Std. Residual	1.9	-1.1	-.4	-.7	
	Disagree	Count	1784	2373	1992	370	6519
		Std. Residual	-3.0	1.6	1.2	.1	
	Agree	Count	578	618	488	108	1792
		Std. Residual	2.2	-.5	-2.0	.7	
	Strongly agree	Count	194	203	197	39	633
		Std. Residual	.6	-1.3	.6	.5	
Total		Count	4133	4949	4185	794	14061

Appendix V

Male and Female Mean Reading Score and Reading Interest within the Language Arts Classroom

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Not at all	4014	452.9114	98.31890	1.55184	449.8689	455.9539	31.19	740.96
A little	8929	484.3302	93.12214	.98549	482.3984	486.2619	148.68	861.51
More than a little	5320	497.1727	95.94035	1.31536	494.5941	499.7514	4.17	876.74
A lot	1150	494.9952	102.29804	3.01660	489.0765	500.9139	174.24	826.35
Total	19413	481.9850	96.84396	.69507	480.6226	483.3473	4.17	876.74

Appendix W

Male Mean Reading Score and Reading Interest within the Language Arts Classroom

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Not at all	2458	444.7679	96.63391	1.94912	440.9459	448.5900	31.19	707.47
A little	4204	476.3295	92.55947	1.42754	473.5307	479.1282	148.68	837.51
More than a little	2306	482.0864	97.02968	2.02057	478.1240	486.0487	4.17	778.54
A lot	491	480.6101	101.79086	4.59376	471.5842	489.6360	174.24	758.10
Total	9459	469.7536	96.37921	.99097	467.8111	471.6961	4.17	837.51

Appendix X

Female Mean Reading Score and Reading Interest within the Language Arts Classroom

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Not at all	1534	467.3275	98.64113	2.51852	462.3874	472.2676	136.12	740.96
A little	4683	492.0860	92.87907	1.35724	489.4252	494.7469	154.14	861.51
More than a little	2992	508.9802	93.09444	1.70193	505.6431	512.3173	124.59	876.74
A lot	651	507.6510	99.71393	3.90810	499.9770	515.3250	219.64	826.35
Total	9860	494.3883	95.32637	.96001	492.5065	496.2701	124.59	876.74

Appendix Y

Male and Female Socioeconomic Status and Reading Interest in the Language Arts Classroom

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is interesting to me * What is the highest level of education completed by your mother (or stepmother or female guardian)? Crosstabulation

			What is the highest level of education completed by your mother (or stepmother or female guardian)?							Total
			Did not complete high school	Completed high school	Had some education after high school	Completed education at a college or cégep	Had some university education but did not complete a degree	Completed one or more university degrees	I don't know	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is interesting to me	Not at all	Count	479	900	566	772	224	1501	1532	5974
		Std. Residual	3.6	.7	-1.4	-2.4	-.2	-3.1	3.7	
	A little	Count	888	2039	1330	1838	496	3338	3195	13124
		Std. Residual	-.1	2.5	.3	-.2	-.2	-3.9	2.3	
	More than a little	Count	453	1048	814	1167	312	2323	1592	7709
		Std. Residual	-3.1	-2.6	1.4	2.5	1.1	4.9	-4.9	
	A lot	Count	113	196	145	225	51	579	323	1632
		Std. Residual	.2	-2.8	-1.5	-.3	-1.4	6.4	-3.0	
Total		Count	1933	4183	2855	4002	1083	7741	6642	28439

Appendix Z

Male Socioeconomic Status and Reading Interest in the Language Arts Classroom

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is interesting to me * What is the highest level of education completed by your mother (or stepmother or female guardian)? Crosstabulation

			What is the highest level of education completed by your mother (or stepmother or female guardian)?							Total
			Did not complete high school	Completed high school	Had some education after high school	Completed education at a college or cégep	Had some university education but did not complete a degree	Completed one or more university degrees	I don't know	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is interesting to me	Not at all	Count	248	542	338	474	139	956	974	3671
		Std. Residual	2.8	1.2	-.4	-1.0	-.1	-2.7	1.7	
	A little	Count	341	924	592	841	236	1673	1608	6215
		Std. Residual	-.5	1.8	.3	.0	.0	-2.3	1.1	
	More than a little	Count	154	413	320	485	136	1083	778	3369
		Std. Residual	-2.6	-2.7	.2	1.4	.7	4.0	-2.4	
	A lot	Count	45	77	61	90	20	261	151	705
		Std. Residual	.8	-2.2	-.6	-.6	-1.3	4.3	-2.0	
Total		Count	788	1956	1311	1890	531	3973	3511	13960

Appendix AA

Female Socioeconomic Status and Reading Interest in the Language Arts Classroom

How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is interesting to me * What is the highest level of education completed by your mother (or stepmother or female guardian)? Crosstabulation

			What is the highest level of education completed by your mother (or stepmother or female guardian)?							Total
			Did not complete high school	Completed high school	Had some education after high school	Completed education at a college or cégep	Had some university education but did not complete a degree	Completed one or more university degrees	I don't know	
How much does each of these apply to reading in your English Language Arts classes? The reading we do in school is interesting to me	Not at all	Count	228	357	226	296	85	540	554	2286
		Std. Residual	3.5	.3	-1.1	-2.1	-.3	-2.3	2.7	
	A little	Count	545	1110	736	990	260	1658	1579	6878
		Std. Residual	.1	1.6	.1	-.4	-.2	-3.1	2.4	
	More than a little	Count	296	633	492	682	175	1236	807	4321
		Std. Residual	-2.4	-1.3	1.5	2.0	.8	3.3	-4.1	
	A lot	Count	68	119	82	135	31	317	171	923
		Std. Residual	-.6	-1.9	-1.7	.0	-.7	4.9	-2.0	
Total		Count	1137	2219	1536	2103	551	3751	3111	14408

Appendix BB

Female Mean Reading Score and Frequency of Parent(s) Reading to Daughter

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	1271	457.9677	93.86277	2.63282	452.8025	463.1328	158.88	751.11
Sometimes	3084	484.4949	95.34336	1.71685	481.1286	487.8612	124.59	876.74
Often	5495	508.3806	92.75179	1.25123	505.9276	510.8335	154.14	850.68
Total	9850	494.3970	95.34951	.96073	492.5138	496.2802	124.59	876.74

Appendix CC

Male Mean Reading Score and Frequency of Parent(s) Reading to Son

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	1767	438.5496	94.22683	2.24159	434.1531	442.9460	31.19	739.86
Sometimes	3551	462.5409	96.44556	1.61848	459.3677	465.7142	4.17	837.51
Often	4126	489.2906	92.72856	1.44361	486.4604	492.1209	148.32	778.54
Total	9444	469.7388	96.34332	.99139	467.7954	471.6821	4.17	837.51

Appendix DD

Male Mean Reading Score and Parental Encouragement of Reading

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	889	425.3887	94.73467	3.17730	419.1528	431.6246	31.19	752.20
Sometimes	3415	453.4078	93.55572	1.60094	450.2689	456.5467	127.56	837.51
Often	5139	488.3025	93.87994	1.30958	485.7351	490.8698	4.17	778.54
Total	9443	469.7601	96.30151	.99101	467.8175	471.7027	4.17	837.51

Appendix EE

Female Mean Reading Score and Parental Encouragement for Reading

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	657	463.3715	91.18788	3.55758	456.3859	470.3571	124.59	751.11
Sometimes	2630	472.1755	92.73919	1.80836	468.6295	475.7215	136.12	876.74
Often	6564	506.4532	94.47841	1.16613	504.1672	508.7392	154.14	861.51
Total	9851	494.4285	95.33978	.96058	492.5456	496.3115	124.59	876.74

Appendix FF

Male Mean Reading Score and Frequency of Mother/Female Guardian Reading at Home

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	1266	438.2504	96.46582	2.71117	432.9315	443.5692	31.19	753.58
Sometimes	2601	462.8355	97.48995	1.91157	459.0871	466.5838	4.17	778.54
Often	5220	482.7240	92.88258	1.28558	480.2037	485.2443	127.56	837.51
Not applicable	329	444.9535	102.27627	5.63867	433.8610	456.0461	142.84	712.88
Total	9416	469.9309	96.34874	.99292	467.9845	471.8772	4.17	837.51

Appendix GG

Male Mean Reading Score and Frequency of Father/Male Guardian Reading at Home

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	2580	456.0495	95.47466	1.87966	452.3638	459.7353	31.19	778.54
Sometimes	3259	473.4737	94.32760	1.65233	470.2340	476.7134	4.17	773.19
Often	2932	482.3394	95.13764	1.75699	478.8944	485.7845	142.84	837.51
Not applicable	504	462.9001	103.35570	4.60383	453.8550	471.9452	148.32	744.80
Total	9275	470.8549	95.96454	.99645	468.9017	472.8082	4.17	837.51

Appendix HH

Female Mean Reading Score and Frequency of Mother/Female Guardian Reading at Home

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	1259	471.2845	98.72818	2.78246	465.8258	476.7433	124.59	861.51
Sometimes	2963	487.2251	94.03249	1.72748	483.8379	490.6123	154.14	850.68
Often	5301	504.8189	93.65199	1.28629	502.2973	507.3406	136.12	876.74
Not applicable	295	483.3688	94.28679	5.48959	472.5649	494.1726	203.46	734.37
Total	9818	494.5645	95.20812	.96087	492.6810	496.4480	124.59	876.74

Appendix II

Female Mean Reading Score and Frequency of Father/Male Guardian Reading at Home

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely or never	2857	482.9353	95.35153	1.78391	479.4374	486.4331	124.59	851.91
Sometimes	3354	495.4393	93.42420	1.61316	492.2765	498.6022	154.14	833.54
Often	2917	508.6807	94.59306	1.75142	505.2465	512.1148	136.12	876.74
Not applicable	524	492.9441	94.94268	4.14759	484.7961	501.0921	158.88	776.72
Total	9652	495.6044	94.94487	.96641	493.7100	497.4988	124.59	876.74

Appendix JJ

Male and Female Mean Reading Score and Self-Efficacy

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	207	378.2061	106.04720	7.37079	363.6742	392.7380	31.19	670.81
1.33	200	412.5107	81.54545	5.76613	401.1401	423.8812	225.64	652.38
1.67	467	420.3093	91.67720	4.24231	411.9729	428.6457	130.08	729.44
2.00	1328	437.1297	92.03852	2.52564	432.1750	442.0844	114.27	776.72
2.33	3101	465.0664	94.39312	1.69508	461.7428	468.3900	171.09	778.54
2.67	5264	480.9036	92.59160	1.27619	478.4017	483.4054	4.17	780.46
3.00	5068	500.4976	95.94694	1.34776	497.8554	503.1398	154.14	876.74
3.33	2490	505.2723	92.57527	1.85522	501.6343	508.9102	148.68	861.51
3.67	1057	501.7116	96.48159	2.96761	495.8885	507.5346	143.11	760.64
4.00	275	487.3924	103.22785	6.22487	475.1377	499.6470	127.56	731.27
Total	19457	481.5862	97.32936	.69776	480.2185	482.9539	4.17	876.74

Appendix KK

Male Mean Reading Score and Self-Efficacy

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	150	375.4304	106.39200	8.68687	358.2651	392.5958	31.19	670.81
1.33	136	407.1615	78.14830	6.70116	393.9086	420.4143	252.01	562.33
1.67	290	411.6086	90.71690	5.32708	401.1238	422.0934	130.08	615.59
2.00	735	427.1302	91.89662	3.38966	420.4757	433.7848	114.27	752.20
2.33	1654	455.6790	93.21536	2.29203	451.1834	460.1746	171.09	773.19
2.67	2602	469.4694	91.11288	1.78618	465.9669	472.9719	4.17	747.13
3.00	2295	491.9910	94.03087	1.96281	488.1420	495.8401	168.48	774.97
3.33	1052	496.1678	93.49506	2.88258	490.5115	501.8240	148.68	837.51
3.67	449	495.8109	95.11053	4.48854	486.9897	504.6321	143.11	726.66
4.00	129	477.5481	97.96181	8.62506	460.4819	494.6142	127.56	666.76
Total	9492	469.4015	96.55645	.99107	467.4588	471.3442	4.17	837.51

Appendix LL

Female Mean Reading Score and Self-Efficacy

Descriptives

READ500

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	54	386.1305	97.37393	13.25091	359.5525	412.7085	160.04	595.03
1.33	62	425.9398	88.48178	11.23720	403.4696	448.4099	225.64	652.38
1.67	171	437.2753	91.06428	6.96386	423.5286	451.0221	136.12	729.44
2.00	584	450.6981	89.93560	3.72156	443.3888	458.0074	154.47	776.72
2.33	1433	476.4739	93.74203	2.47635	471.6162	481.3315	181.24	778.54
2.67	2639	492.8447	92.25330	1.79582	489.3233	496.3660	124.59	780.46
3.00	2752	508.0262	96.61087	1.84163	504.4151	511.6373	154.14	876.74
3.33	1432	512.2348	91.11548	2.40780	507.5116	516.9580	185.23	861.51
3.67	601	507.2570	96.94561	3.95449	499.4906	515.0233	219.64	760.64
4.00	140	500.6729	105.25050	8.89529	483.0853	518.2605	259.84	731.27
Total	9868	494.0423	96.04008	.96680	492.1472	495.9374	124.59	876.74

Appendix MM

Male and Female Socioeconomic Status and Self-Efficacy

self_efficacy * What is the highest level of education completed by your mother (or stepmother or female guardian)? Crosstabulation

			What is the highest level of education completed by your mother (or stepmother or female guardian)?							Total
			Did not complete high school	Completed high school	Had some education after high school	Completed education at a college or cégep	Had some university education but did not complete a degree	Completed one or more university degrees	I don't know	
self_efficacy	1.00	Count	40	58	22	41	6	64	90	321
		Expected Count	21.9	47.3	32.1	45.2	12.2	87.2	75.0	321.0
		Std. Residual	3.9	1.6	-1.8	-.6	-1.8	-2.5	1.7	
	1.33	Count	23	51	27	27	5	44	101	278
		Expected Count	19.0	40.9	27.8	39.2	10.6	75.6	65.0	278.0
		Std. Residual	.9	1.6	-.2	-1.9	-1.7	-3.6	4.5	
	1.67	Count	67	102	51	84	27	106	223	660
		Expected Count	45.0	97.2	66.1	93.0	25.1	179.4	154.2	660.0
		Std. Residual	3.3	.5	-1.9	-.9	.4	-5.5	5.5	
	2.00	Count	167	318	190	254	63	448	488	1928
		Expected Count	131.6	283.9	193.0	271.7	73.2	524.0	450.5	1928.0
		Std. Residual	3.1	2.0	-.2	-1.1	-1.2	-3.3	1.8	
	2.33	Count	308	711	443	619	173	1121	1158	4533
		Expected Count	309.3	667.6	453.7	638.8	172.2	1232.1	1059.2	4533.0
		Std. Residual	-.1	1.7	-.5	-.8	.1	-3.2	3.0	

		Count	490	1130	821	1121	287	2044	1799	7692
	2.67	Expected Count	524.9	1132.8	770.0	1084.0	292.2	2090.7	1797.4	7692.0
		Std. Residual	-1.5	-.1	1.8	1.1	-.3	-1.0	.0	
		Count	467	1074	720	1075	305	2309	1568	7518
	3.00	Expected Count	513.0	1107.2	752.5	1059.5	285.6	2043.4	1756.7	7518.0
		Std. Residual	-2.0	-1.0	-1.2	.5	1.1	5.9	-4.5	
		Count	239	490	391	486	139	1072	782	3599
	3.33	Expected Count	245.6	530.0	360.3	507.2	136.7	978.2	841.0	3599.0
		Std. Residual	-.4	-1.7	1.6	-.9	.2	3.0	-2.0	
		Count	113	199	150	253	66	431	342	1554
	3.67	Expected Count	106.0	228.9	155.6	219.0	59.0	422.4	363.1	1554.0
		Std. Residual	.7	-2.0	-.4	2.3	.9	.4	-1.1	
		Count	33	69	41	61	13	116	116	449
	4.00	Expected Count	30.6	66.1	44.9	63.3	17.1	122.0	104.9	449.0
		Std. Residual	.4	.4	-.6	-.3	-1.0	-.5	1.1	
		Count	1947	4202	2856	4021	1084	7755	6667	28532
Total		Expected Count	1947.0	4202.0	2856.0	4021.0	1084.0	7755.0	6667.0	28532.0

Appendix NN

Male Socioeconomic Status and Self-Efficacy

self_efficacy * What is the highest level of education completed by your mother (or stepmother or female guardian)? Crosstabulation

			What is the highest level of education completed by your mother (or stepmother or female guardian)?							Total
			Did not complete high school	Completed high school	Had some education after high school	Completed education at a college or cégep	Had some university education but did not complete a degree	Completed one or more university degrees	I don't know	
self_efficacy	1.00	Count	22	47	14	35	6	51	62	237
		Expected Count	13.5	33.4	22.3	32.1	8.9	67.3	59.5	237.0
		Std. Residual	2.3	2.4	-1.8	.5	-1.0	-2.0	.3	
	1.33	Count	14	34	17	16	2	34	70	187
		Expected Count	10.6	26.3	17.6	25.3	7.0	53.1	47.0	187.0
		Std. Residual	1.0	1.5	-.1	-1.9	-1.9	-2.6	3.4	
	1.67	Count	40	62	28	52	16	71	153	422
		Expected Count	24.0	59.5	39.8	57.1	15.9	119.9	106.0	422.0
		Std. Residual	3.3	.3	-1.9	-.7	.0	-4.5	4.6	
	2.00	Count	84	187	103	136	35	259	311	1115
		Expected Count	63.3	157.1	105.1	151.0	41.9	316.7	280.0	1115.0
		Std. Residual	2.6	2.4	-.2	-1.2	-1.1	-3.2	1.9	
	2.33	Count	140	365	207	332	94	642	624	2404
		Expected Count	136.5	338.7	226.5	325.5	90.4	682.8	603.6	2404.0
		Std. Residual	.3	1.4	-1.3	.4	.4	-1.6	.8	
	2.67	Count	193	522	394	567	152	1064	944	3836

		Expected Count	217.8	540.4	361.5	519.3	144.2	1089.6	963.2	3836.0
		Std. Residual	-1.7	-.8	1.7	2.1	.6	-.8	-.6	
		Count	173	462	326	460	134	1114	769	3438
	3.00	Expected Count	195.2	484.3	324.0	465.5	129.2	976.5	863.2	3438.0
		Std. Residual	-1.6	-1.0	.1	-.3	.4	4.4	-3.2	
		Count	78	192	163	181	61	481	362	1518
	3.33	Expected Count	86.2	213.9	143.0	205.5	57.1	431.2	381.2	1518.0
		Std. Residual	-.9	-1.5	1.7	-1.7	.5	2.4	-1.0	
		Count	39	77	52	96	22	206	161	653
	3.67	Expected Count	37.1	92.0	61.5	88.4	24.5	185.5	164.0	653.0
		Std. Residual	.3	-1.6	-1.2	.8	-.5	1.5	-.2	
		Count	13	27	17	23	5	60	64	209
	4.00	Expected Count	11.9	29.4	19.7	28.3	7.9	59.4	52.5	209.0
		Std. Residual	.3	-.5	-.6	-1.0	-1.0	.1	1.6	
		Count	796	1975	1321	1898	527	3982	3520	14019
Total		Expected Count	796.0	1975.0	1321.0	1898.0	527.0	3982.0	3520.0	14019.0

Appendix OO

Female Socioeconomic Status and Self-Efficacy

self_efficacy * What is the highest level of education completed by your mother (or stepmother or female guardian)? Crosstabulation

			What is the highest level of education completed by your mother (or stepmother or female guardian)?							Total
			Did not complete high school	Completed high school	Had some education after high school	Completed education at a college or cégep	Had some university education but did not complete a degree	Completed one or more university degrees	I don't know	
self_efficacy	1.00	Count	18	11	8	4	0	13	27	81
		Expected Count	6.4	12.4	8.6	11.9	3.1	21.1	17.5	81.0
		Std. Residual	4.6	-.4	-.2	-2.3	-1.8	-1.8	2.3	
	1.33	Count	8	17	10	11	3	9	31	89
		Expected Count	7.1	13.7	9.4	13.0	3.4	23.1	19.3	89.0
		Std. Residual	.4	.9	.2	-.6	-.2	-2.9	2.7	
	1.67	Count	26	39	23	31	11	34	68	232
		Expected Count	18.4	35.6	24.5	34.0	8.9	60.3	50.2	232.0
		Std. Residual	1.8	.6	-.3	-.5	.7	-3.4	2.5	
	2.00	Count	82	131	85	118	28	185	175	804
		Expected Count	63.7	123.5	85.0	117.8	30.9	209.0	174.0	804.0
		Std. Residual	2.3	.7	.0	.0	-.5	-1.7	.1	
	2.33	Count	167	346	236	285	79	478	530	2121
		Expected Count	168.1	325.8	224.2	310.7	81.6	551.4	459.0	2121.0
		Std. Residual	-.1	1.1	.8	-1.5	-.3	-3.1	3.3	
	2.67	Count	297	605	425	553	134	978	852	3844

		Expected Count	304.7	590.5	406.4	563.1	148.0	999.3	831.9	3844.0
		Std. Residual	-.4	.6	.9	-.4	-1.1	-.7	.7	
		Count	293	610	392	614	171	1191	796	4067
	3.00	Expected Count	322.4	624.8	430.0	595.8	156.6	1057.3	880.2	4067.0
		Std. Residual	-1.6	-.6	-1.8	.7	1.2	4.1	-2.8	
		Count	160	296	228	305	78	588	418	2073
	3.33	Expected Count	164.3	318.5	219.2	303.7	79.8	538.9	448.6	2073.0
		Std. Residual	-.3	-1.3	.6	.1	-.2	2.1	-1.4	
		Count	74	122	97	157	44	224	179	897
	3.67	Expected Count	71.1	137.8	94.8	131.4	34.5	233.2	194.1	897.0
		Std. Residual	.3	-1.3	.2	2.2	1.6	-.6	-1.1	
		Count	20	42	23	38	8	55	50	236
	4.00	Expected Count	18.7	36.3	24.9	34.6	9.1	61.4	51.1	236.0
		Std. Residual	.3	1.0	-.4	.6	-.4	-.8	-.2	
		Count	1145	2219	1527	2116	556	3755	3126	14444
Total		Expected Count	1145.0	2219.0	1527.0	2116.0	556.0	3755.0	3126.0	14444.0